89-4001

HYDRAULIC DATA FOR SHALLOW OPEN-CHANNEL FLOW IN A HIGH-GRADIENT FLUME WITH LARGE BED MATERIAL

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 89-4001

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By Fred J. Watts

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 89-4001

Reston, Virginia

1989

DEPARTMENT OF THE INTERIOR

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METRIC CONVERSION FACTORS

Inch-pound units used in this report may be converted to metric (International System) units by using the following conversion factors:

Multiply inch-pound unit	By	To obtain metric unit
foot (ft)	0.3048	meter (m)
foot (ft)	304.8	millimeter (mm)
foot per second (ft/s)	0.3048	meter per second (m/s)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
pound (lb)	0.4536	kilogram (kg)

HYDRAULIC DATA FOR SHALLOW OPEN-CHANNEL FLOW IN A HIGH-GRADIENT FLUME WITH LARGE BED MATERIAL

by Fred J. Watts[1/]

ABSTRACT

Hydraulic data for shallow open-channel flow in a high-gradient flume with large bed material are reported. The bed surface consists of natural rock having a particle-size range of 0.15 to 0.75 foot. Two different bed-surface configurations (roughness) were tested. The bed material was stable for all discharges. The flume wall was composed of smooth plastic and aluminum, and the test channel was 6 feet wide and 108 feet long. Longitudinal test slopes ranged from 0.008 to 0.018. Hydraulic data are reported for 103 runs with surface flows ranging from 0.7 to 32.1 cubic feet per second and for 11 runs with subsurface flows ranging from 0.1 to 0.7 cubic foot per second. Hydraulic data for all runs include water-surface elevation and average bed elevation at 10 cross sections and test discharge. Detailed velocity measurements at two or more cross sections are reported for selected runs. The bed-material data include shape and size properties of the rock, detailed topographic measurements of the bed surface for each of the two roughness that were tested, and 14 statistical parameters computed from the topographic measurements. The statistical parameters include the mean elevation of the bed, the skew of the elevations, the kurtosis of the elevations, and the standard deviation from the arithmetic mean elevation for each station.

INTRODUCTION

A comprehensive set of hydraulic data for shallow open-channel flow in a high-gradient rough channel was collected in the Hydraulics Laboratory of the Gulf Coast Hydroscience Center, U.S. Geological Survey, National Space Technology Laboratories, NSTL, Mississippi. The objective of the data-collection program was to obtain sufficient data to: (1) further refine techniques for estimating Manning's n value given appropriate cross-section data and velocity data that can be conveniently collected in the field; (2) study the velocity profiles (vertical and transverse) as stage is systematically lowered; (3) evaluate various methods of estimating hydraulic radius of streams with large bed materials; and (4) determine the type and number of field measurements at a cross section that are required to adequately estimate the roughness of the section.

Purpose and Scope

The purpose of this report is to present the hydraulic data collected in a convenient and usable format so that other engineers, scientists, and research personnel can have ready access and use of the data. The data also

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are available on magnetic tape from the Geological Survey. Contact the Office of Surface Water, 415 National Center, U.S. Geological Survey, Reston, Virginia 22092. The data were collected from January 1986 through July 1986.

Large rocks (intermediate axis ranging from 0.15 to 0.75 foot) were used for the bed of the 6-foot wide channel, and the sides of the channel were smooth plastic and aluminum. The 50-percent finer than sieve size of the surface material was 0.62 foot, the coefficient of gradation was 1.17, and the average Corey shape factor was 0.61. The rock was sized so that no bed material would move under the range of discharge and slope that were examined.

The bed surface for Series I tests was arranged so that it was very rough. The standard deviation of the point elevations of the bed at a cross section with reference to the mean of the point elevations averaged about 0.168 foot. A series of 56 sets of data were obtained with Series I roughness.

To extend the scope of testing, the surface material was then slightly rearranged. Larger rocks were moved slightly and placed in depressions. As a result of this minor moving of rock, the surface was generally smoothed. The averaged standard deviation of point elevations of the bed for Series II roughness tests was 0.133. That is, the standard deviation of the projections was reduced by 0.035 foot (21 percent). A series of 58 tests was conducted on the Series II roughness. The gradation and size of the surface material was the same for Series I and Series II roughness.

A major portion of this study was directed at the collection of data to be used for developing a methodology for characterizing the surface roughness of high-gradient rock bed channels. Because of this objective, detailed surface-elevation data were collected for both Series I and Series II roughness. Also, considerable time was spent obtaining representative dimensions of major, intermediate, and minor axes of the rock and gradation of surface material.

A comprehensive list of slopes, discharges, and other flow parameters for Series I tests is shown in table 1. Table 2 lists similar data for Series II tests.

Acknowledgments

This data-collection project was performed while the author was on sabbatical leave from the University of Idaho and on a temporary assignment with the Geological Survey at the Gulf Coast Hydroscience Center, NSTL, Mississippi.

The development and construction of the test channel and data-collection equipment and the collection, management, and preliminary processing of data were performed by personnel from Computer Science Corporation (CSC)[1/], a private subcontractor who operated the hydraulics laboratory for the Geological Survey, and Geological Survey personnel. The financial support provided by the Geological Survey and the opportunity for the sabbatical leave and

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[1/]Reference to trade names, commercial products, manufacturers, or distributors in this manual is for identification purposes only and does not constitute an endorsement or a recommendation for use by the U.S. Geological Survey.

financial support provided by the University of Idaho are very much appreciated. The extraordinary cooperation and exchange of ideas, the industry of the engineering personnel and laboratory technicians, the quality of construction, and the care and attention shown to collecting and processing the data are very much appreciated.

DESCRIPTION OF TEST FACILITY

Test Channel

A 108-foot long test section of rock-lined channel bed with smooth side walls was constructed in a 6-foot wide by 250-foot long tilting flume (fig. 1). The slope of the flume could be varied from 0 to 1 percent. An objective of the experiment was to test on slopes up to 1.8 percent; and therefore it was necessary to build a wedge-shaped base with a longitudinal slope of 0.8 percent with respect to the floor of the flume.

Starting at Station (Sta) 0.33 (fig. 1), 3/4-inch thick vertical transverse impervious barriers, cut to appropriate height, were placed every 12 feet along the flume. A waterproof seal was constructed around the edges. A 1-inch diameter perforated PVC pipe piezometer extending the entire width of the flume was placed a few inches above the metal floor of the flume and 4 inches upstream of the impervious barrier. A 1-inch diameter pipe placed through the floor of the flume connected the piezometer to a hose leading to a water manometer. The centerline of the piezometer was carefully aligned perpendicular to the centerline of the flume. The test section (Sta) where all velocities were measured was directly above the piezometer. The purpose of the piezometers was to accurately and quickly measure water-surface elevation at the test sections.

After the piezometers were constructed, the space between the impervious barriers was carefully filled to grade with clean 3/8- to 3/4-inch gravel. The loose gravel provided an adjustable base for placement of the large size bed-surface material and clean subsurface voids for transmitting water pressure to the piezometer.

A layer of large element bed material averaging about 9-inches thick was carefully placed on the base material. Temporary screeds set to grade were constructed along each side of the flume floor to facilitate placement of the rock and assure a uniform surface grade. An appropriate number of rocks of each size were hand carried to the section and properly blended to obtain a uniform mixture of sizes.

Approach Channel

Special flow straighteners and a ramp floor were constructed between the headbox and the test section to ensure a uniform approach velocity at Sta 0. Details of the flow straighteners and transition section are shown in figure 1. An examination of a detailed set of velocity profiles taken at Sta -4, -2, 0, 6, and 12 (Run 17 A, B, C, and D, table 1) for a discharge of 31.9 cubic feet per second (ft^3/s) shows that the approach velocity was uniform.

Table 1.--Data and flow parameters - Series I Roughness

[Sta, station; ft^3/s, cubic feet per second]

Target slope[a]	Run number	Discharge			Station, integrated discharge (Q), and energy coefficient (α)											
		Orifice (ft^3/s)	Subsurface (ft^3/s)	Surface (ft^3/s)	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α
0.008	1	31.75	0.30	31.45	36	31.3	1.12	60	30.2	1.11	84	31.6	1.15						
"	2	16.21	"	15.91	36	15.4	1.12	60	14.5	1.13	84	15.0	1.18						
"	3	9.43	"	9.13															
"	3A	23.26	"	22.96															
"	4	1.06	"	0.76															
"	5	4.58	"	4.28	36	4.2	1.21	60	3.5	1.13	84	3.8	1.42	b					
"	6	32.19	"	31.89	24	28.7	1.25	48	28.7	1.18	72	27.6	1.18	84	29.0	1.18			
"	7	16.63	"	16.33	24	14.6	1.31	48	15.6	1.15	72	14.8	1.15						
"	8A	4.56	"	4.26	24	3.9	1.51	48	3.9	1.24	72	3.3	1.33	84	3.9	1.53	b		
"	8G	23.68	"	23.38															
"	8I	1.07		.77															
"	9	6.07	"	5.77															
"	9	7.99	"	7.69															
"	9	9.39	"	9.09															
0.008	9	11.99	0.30	11.69															
0.0105	11A	4.49	0.33	4.16															
"	11B	6.02	"	5.69															
"	11C	8.01	"	7.68															
"	11D	9.21	"	8.88															
"	11E	12.03	"	11.70															
"	11F	16.07	"	15.74															
"	11G	23.83	"	23.50															
"	11H	31.05	"	30.72															
0.0105	11I	1.13	0.33	0.80															
0.0130	12	31.68	0.35	31.33	36	32.2	1.14	72	31.2	1.16									
"	13	16.12	"	15.77	36	18.5	1.17	72	16.2	1.10									
"	13C	4.68	"	4.33	36	3.9	1.29	72	4.0	1.38	b								
"	14A	5.99	"	5.64															
"	14B	8.04	"	7.69															
"	14C	9.36	"	9.01															
"	14D	12.10	"	11.75															
"	14E	24.21	"	23.86															
0.0103	14I	1.13	0.35	0.78															

Footnotes at end of table.

Table 1.--Data and flow parameters - Series I Roughness--Continued

[Sta, station; ft^3/s, cubic feet per second]

Target slope[a]	Run number	Discharge			Station, integrated discharge (Q), and energy coefficient (α)														
		Orifice (ft^3/s)	Subsurface (ft^3/s)	Surface (ft^3/s)	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α
0.0155	15A	4.50	0.38	4.12															
"	15B	6.03	"	5.65															
"	15C	8.05	"	7.67															
"	15D	9.71	"	9.33															
"	15E	12.14	"	11.76															
"	15F	16.08	"	15.70															
"	15G	23.94	"	23.56															
"	15H	31.51	"	31.13															
0.0155	15I	1.13	0.38	0.75															
0.018	16A	4.60	0.40	4.20	36	4.6	1.18	72	3.7	1.38	b								
"	16B	6.04	"	5.64															
"	16C	8.05	"	7.65															
"	16D	9.82	"	9.42															
"	16E	12.13	"	11.73															
"	16F	16.21	"	15.81	36	15.5	1.19	72	15.5	1.12									
"	16G	23.73	"	23.33															
"	16H	32.05	"	31.65	0	26.9	1.06	36	33.1	1.15	48	34.4	1.20	60	31.8	1.15	72	28.8	1.20
0.018	16I	1.13	0.40	0.73															
Subsurface Flow Determination																			
0.008	10A	0.19																	
0.008	10B	.27																	
0.008	10C	.48																	
Boundary Layer Development at Entrance of Test Section																			
0.008	17ABC	31.87			-4	28.3	1.07	-2	27.9		0	26.3							
0.008	17D	31.97												6	28.6		12	29.5	b,c

[a] Target slope refers to the approximate longitudinal slope of the channel.

[b] Values obtained by hand computations - values are approximate.

[c] Data for Runs A, B, and C shown on same line; see Appendix III B for additional details.

Table 2.--Data and flow parameters - Series II Roughness

[Sta, station; ft^3/s, cubic feet per second]

Target slope[a/]	Run number	Discharge			Station, integrated discharge (Q), and energy coefficient (α)											
		Orifice (ft^3/s)	Subsurface (ft^3/s)	Surface (ft^3/s)	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α
0.008	20A	0.98	0.30	0.68												
"	20B	2.20	"	1.90												
"	20C	4.55	"	4.25												
"	20D	5.99	"	5.69												
"	20E	8.03	"	7.73												
"	20F	9.39	"	9.09												
"	20G	12.12	"	11.82												
"	20H	16.52	"	16.22												
"	20I	24.00	"	23.70												
0.008	20J	32.14	0.30	31.84												
0.0105	21A	1.00	0.33	0.67												
"	21B	2.21	"	1.88												
"	21C	4.53	"	4.20												
"	21D	6.07	"	5.74												
"	21E	8.02	"	7.69												
"	21F	9.42	"	9.09												
"	21G	12.16	"	11.83												
"	21H	16.42	"	16.09												
"	21I	23.96	"	23.63												
0.0105	21J	32.34	0.33	32.01												
0.0130	22A	1.02	0.35	0.67												
"	22B	2.21	"	1.86												
"	22C	4.47	"	4.12												
"	22D	6.05	"	5.70												
"	22E	7.99	"	7.64												
"	22F	9.50	"	9.15												
"	22G	12.05	"	11.70												
"	22H	16.50	"	16.15												
"	22I	23.44	"	23.09												
0.0130	22J	32.12	0.35	31.77												

Footnotes at end of table.

Table 2.--Data and flow parameters - Series I Roughness--Continued

[Sta, station; ft^3/s, cubic feet per second]

Target slope[a]	Run number	Discharge			Station, integrated discharge (Q), and energy coefficient (α)											
		Orifice (ft^3/s)	Subsurface (ft^3/s)	Surface (ft^3/s)	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α	Sta	Q (ft^3/s)	α
0.0155	23A	1.00	0.38	0.62												
"	23B	2.21	"	1.83												
"	23C	4.57	"	4.19												
"	23D	6.20	"	5.82												
"	23E	8.05	"	7.67												
"	23F	9.09	"	8.71												
"	23G	12.21	"	11.83												
"	23H	16.27	"	15.89												
"	23I	24.07	"	23.69												
0.0155	23J	32.14	0.38	31.76												
0.018	24A	1.00	0.40	0.60												
"	24B	2.21	"	1.81												
"	24C	4.52	"	4.12	36	4.0	1.27	72	3.8	1.12	*b*					
"	24D	5.98	"	5.58												
"	24E	7.99	"	7.59												
"	24F	9.30	"	8.90												
"	24G	12.13	"	11.73												
"	24H	16.62	"	16.22	36	15.7	1.14	72	16.0	1.14						
"	24I	23.83	"	23.43												
0.018	24J	32.19	0.40	31.79	36	31.0	1.16	72	30.5	1.11						
Subsurface Flow Determination																
0.008	25A	0.11														
"	25B	.27														
"	25C	.35														
0.008	25D	.68														
0.018	24K	0.22														
"	24L	.38														
"	24M	.53														
0.018	24N	.68														

[a] Target slope refers to the approximate longitudinal slope of the channel.

[b] Values obtained by hand computations - values are approximate.

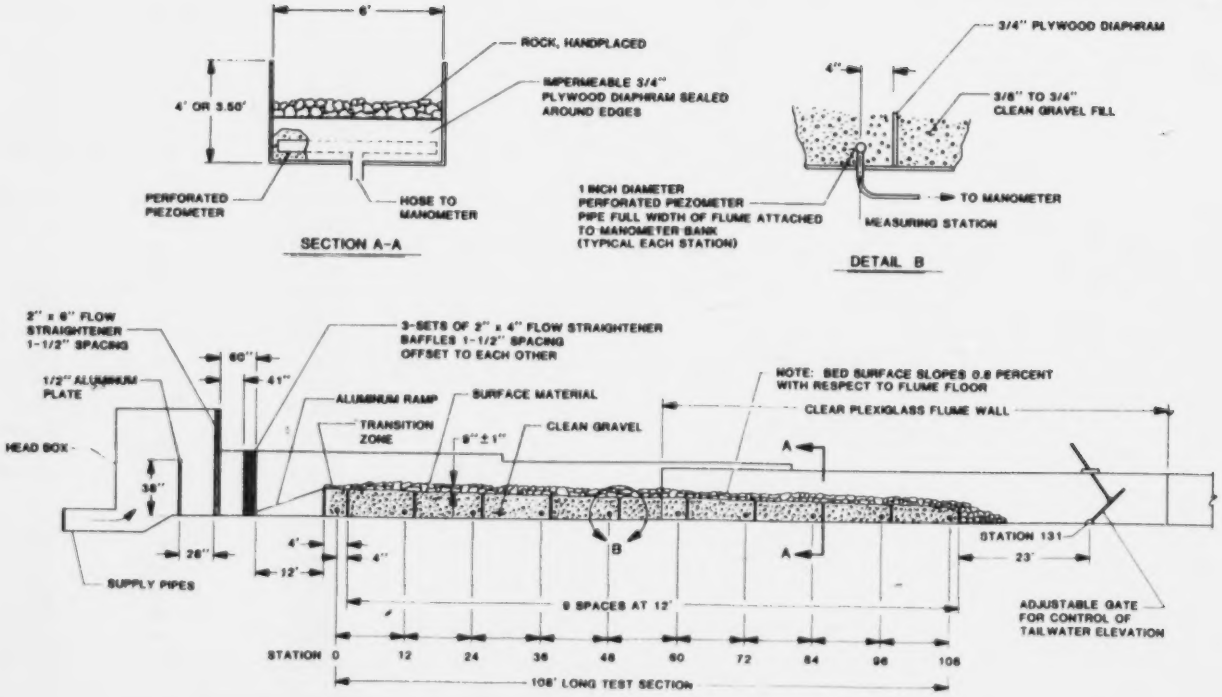

Figure 1.--Centerline section of test reach in the tilting flume.

Tailwater Control

An adjustable gate, hinged at the bottom, at Sta 131 was used for control of tailwater elevation. After the flow had stabilized, the operator could see the longitudinal water-surface profile for the entire test reach displayed on the water manometers. The elevation of the tailgate could readily be adjusted so that the projected slope of the upstream water elevations displayed on the manometers coincide with the water-surface elevation of the well for Sta 96. The water manometers and point gages are shown in figure 2.

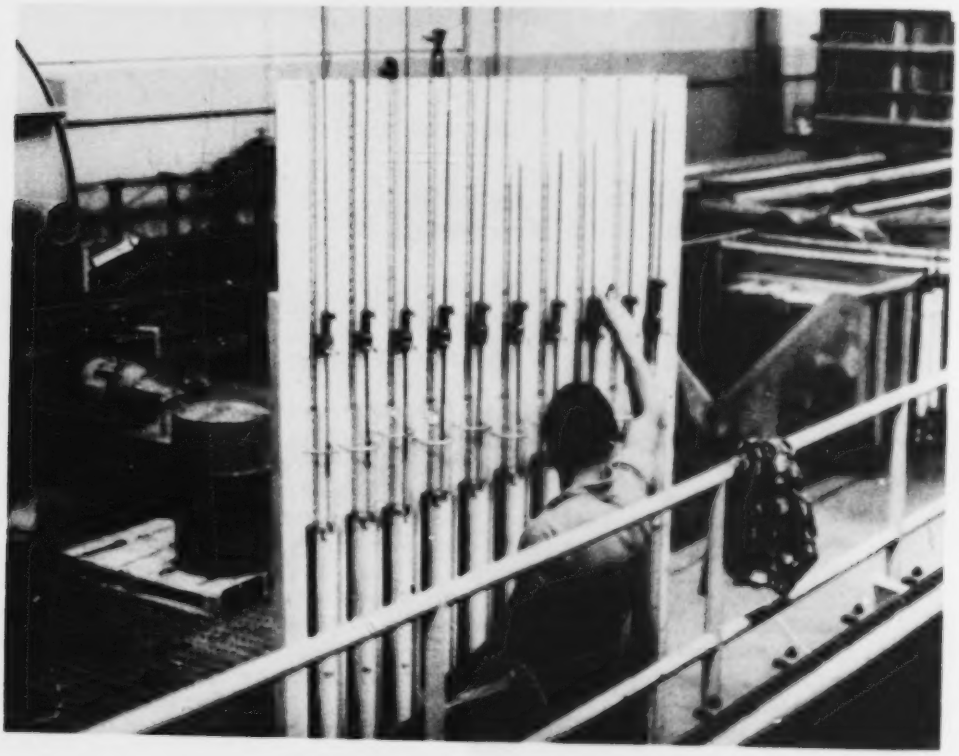

Figure 2.--Water manometers and point gages.

Water Delivery System

Water was delivered to the head box of the flume through one or more of three parallel pipes connected to a constant head tank. The pipes were 16 inches, 18 inches, and 24 inches in diameter. Each pipe was equipped with an orifice meter, manometer, and appropriate valves. Discharge above 3.0 ft^3/s was measured with sharp-edged plate orifice meters (henceforth referred to as orifice or orifice meter) coupled to water manometers. Discharges ranging from 1 to 3 ft^3/s were routed through a 6-inch pipe with an orifice meter and a mercury manometer. For discharge less than 1 ft^3/s, all water at the brink of the flume was collected and routed to a 30° V-notch sharp-crested weir. Test discharges ranged from 0.1 to 32.0 ft^3/s.

During flume operation, water in the tail box was continuously pumped back into the overflow constant head tank. Because the flow was driven by a constant head tank, the system was very stable; and once flow was established, the discharge remained constant without surges. After a few preliminary runs, the specified target discharge was easily obtained by opening appropriate valves the proper number of turns as determined from previous runs with similar discharges.

Instrumentation

An instrument carriage and data-collection-processing-transmission system were developed for this project by Computer Science Corporation personnel and the Geological Survey laboratory manager. The data-collection-processing system was built around a microcomputer.

A rigid precision-surface horizontal track extending the full width of the flume was constructed on the front of a sturdy 6-foot by 6-foot wheeled instrument cart that ran on rails attached to the top of sidewalls of the flume (fig. 3). A wheeled instrument mount, with a geared vertical translator and a length of round instrument mounting rod projecting below the translator, was attached to the track. The rod, used as an instrument mount and also as a point gage, will henceforth be referred to as the "probe." The probe mount was gear-driven transversely and vertically by manual operation of wheel cranks.

The horizontal location (x coordinate) and the vertical location (y coordinate) of the probe were each monitored with a displacement transducer. A transducer was attached to a fixed surface on the side of the cart and a thin stainless steel cable that reeled out of the transducer was attached to the movable probe mount. An electrical signal proportional to the horizontal extension of the cable from the transducer was routed to the computer.

At each station the left wall of the flume (looking upstream) was established as the O X coordinate datum. Prior to collecting a set of data, the probe was positioned at the wall and the transducer was zeroed and scaled. The operator could manipulate the driving wheel for the mount and monitor the x coordinate of the probe on the computer screen. There was a horizontal scale on the track the full width of the flume and a pointer on the mount so the x coordinate also could be visually checked.

The vertical position of the probe was monitored with a similar system with the y coordinate appearing on the computer screen. A vertical scale was attached to the translator and a pointer attached to the mount so that the y coordinate could be visually checked. The range of the vertical transducer was scaled using this vertical scale.

The elevation of the probe tip was determined by moving the probe carriage to the side of the flume and lowering the probe tip till it rested on top of a short piece of a aluminum angle (henceforth referred to as the flume clip) permanently attached to the flume wall slightly above the water surface (fig. 4). For each setting of the flume, the elevation of the flume clip on each side of the flume at each station was determined by differential leveling.

The probe was well built and it could be quickly placed anywhere in the cross section with a horizontal or vertical tolerance of ± 0.01 foot.

Figure 3.--Instrument carriage, probe, and data acquisition system.

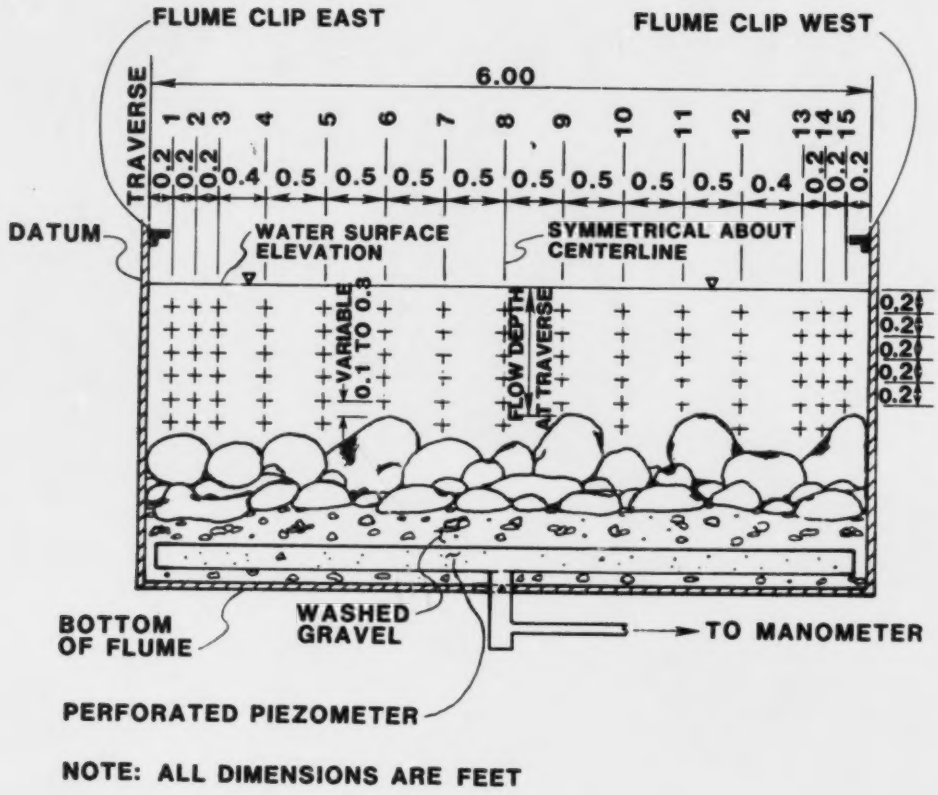

Figure 4.--Cross section at test stations showing flume clips, datum, locations of vertical traverses, and points where velocities were measured.

The bottom of the probe was used as a point gage for determining elevations of the bed. A vertical axis current meter was rigidly attached to the bottom of the probe and used for all velocity measurements. The meter, a Price pygmy current meter with a solid polymer bucket wheel equipped with an optic counting head, is shown in figure 5.

The system was configured so that when data were collected, the signal associated with the x coordinate, the y coordinate, the number of meter revolutions, and the associated increment of the time were each recorded in response to a command by the operator. All data appeared continuously on the computer screen so the operator could determine when a measurement was complete.

A program was developed to convert the data set stored on the diskette to x coordinate, y coordinate, and velocity. These data and additional run data, such as station, time data were taken, manometer column readings, orifice discharge, water temperature, and flow depth at each velocity traverse, were then properly formatted and printed out.

Figure 5.--Probe and pygmy current meter near bed of test channel.

MEASURING TECHNIQUES

Rock Properties

The stream rounded sandstone that was used for the bed was carefully sorted into six size categories. Each rock was hand placed through a series of square openings ("sieves") with inside dimensions of 0.75, 0.65, 0.55, 0.45, 0.35, 0.25, and 0.15 foot. Each rock of a given size category (passed 0.75 foot sieve, retained on 0.65 foot sieve, as an example) was washed and painted a specific color. The clean rock was dipped into a thin mixture of paint so that the surface of the rock was completely covered and easily identifiable but did not have a slick glossy coat and thus a different surface roughness.

After the bed surface was constructed, 180 rocks (30 of each size) were randomly selected from the surface layer between Sta 24 and 84. The maximum, intermediate, and minor axis of each rock was carefully measured with calipers. The submerged and dry weight of each rock was determined, then the rock was replaced in its original orientation and location.

The axis length was measured along three mutually perpendicular axis that intersect near the centroid of the rock. The largest dimension of the rock is defined as the length of the major axis. The length of the minor axis is the minimum length axis intercept perpendicular to the major axis. The length of the intermediate axis is the length of the axis intercept perpendicular to the minor axis and major axis. The length of the intermediate axis was considered to be the "sieve size" of the rock.

The size of each rock was identified by its color and therefore it was very easy to determine the as-built distribution of bed-surface material. A 6-foot long by 4-foot wide frame strung with string forming a 6-inch by 6-inch grid was placed on the bed and a color photograph was obtained. For Series I tests the frame was photographed at Sta 0, 12, 24, 36, 48, 60, 66, 72, 84, 96, and 108, both before tests and after all tests were completed. The surface for Series II runs was photographed before and after testing at Sta 12, 24, 36, 48, 60, 66, 72, 84, and 96. Later, the color slides were projected on a screen and the number of rocks of each specified color that appeared at the intersection of a grid were tabulated. Knowing the average weight of rocks of each color category, the size-frequency distributions of the as-built surface was determined.

The size-frequency distribution of surface material for Series I and Series II runs were, for all practical purposes, identical.

Bed Elevations

With references to the cross section shown in figure 6, it is difficult to define the "average" elevation of the bed. For this study a series of point elevations were obtained at grid points in a rectangular sample area of the flume. The sampled area extended from 0.7 foot upstream of the test section to a point 0.7 foot downstream of the test section and covered the full width of the flume. The grid points were spaced at 0.1 foot centers both longitudinally and transversely. For example, the sample area for station 72 included a traverse at Sta 71.3 and one at Sta 72.7 with an additional 13 traverses spaced at 0.1 foot centers between.

The probe described in an earlier section was used to obtain the 885 data points at each station. It required about 2 1/2 hours to position the carriage, zero the probe, and obtain and record the 885 data points. For Series I runs, full sets of data were taken at Sta 12, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, and 96 and partial sets of data at Sta 0.7 and 106. For Series II runs, full sets of data were taken at Sta 12, 24, 36, 42, 48, 54, 60, 66, 72, 84, and 96. The x and y coordinates of the probe were recorded to 0.002 foot. True coordinates of the points are within $\pm$ 0.01 foot.

There was some operator subjectivity concerning the placement of the probe tip. If the probe happened to pass through a small gap between two large rocks and came to rest on the gravel underlayer, an unrealistic low elevation would be recorded. The underlying void under natural conditions would be filled with gravel, sand, and silt. The probe operator was directed to stop the probe in the small gap between rocks at an elevation where the bed would occur under natural conditions, as an example, at the midheight of two spherically shaped adjoining rocks.

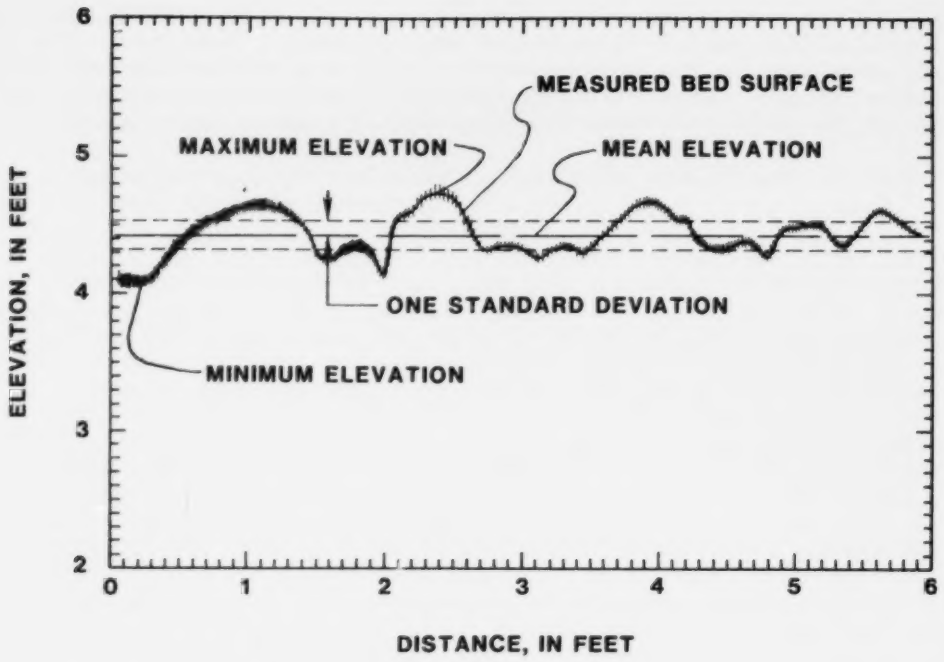

Figure 6.--Typical cross section at test section showing mean elevation, minimum elevation, maximum elevation, and one standard deviation.

Water-Surface Elevations

Water-surface elevations for all runs were obtained from point gage readings of the water surface in the 4-inch diameter lucite water manometer, attached to a piezometer buried in the bed at the measuring station (fig. 2). The vernier of the point gage was read to 0.001 foot. The reading procedure was as follows:

1. After flow had stabilized, the point of the hook gage at each of the 10 manometers was set as quickly as possible to the water surface.

2. The vernier of the point gage was read, recorded, and the point was moved away from the water surface. This was repeated for each of the 10 manometers.

3. Steps 1 and 2 above were repeated five times; that is, five sets of independent water-surface elevations were obtained.

As a minimum, the above procedure was repeated three times; once at the beginning of the run, once midway through the run, and once at the end of the run. When velocities were measured at more than two cross sections, additional water-surface data sets were obtained.

Despite the very rough water surface, once flow was established, there was very little fluctuation in measured water-surface elevations. The dissipation of turbulence by the porous media surrounding the piezometer, coupled with the damping associated with the long 5/8-inch hose connected to the 4-inch diameter manometer, resulted in very stable time-averaged water-surface elevations.

Discharge

Target values of discharge for most runs were established as 32, 24, 16, 12, 9, 8, 6, 4.5, and 1 ft^3/s. In the interest of expediency, no attempt was made to exactly hit these target discharges. On the basis of recorded valve settings from preliminary experiments, the operator could quickly position the valves such that we were near the target discharge for each run.

Actual surface discharge for each test run was obtained from orifice or weir readings with appropriate adjustment for the subsurface flow (column 4, tables 1 and 2) through a portion of the 9-inch thick layer of coarse bed material. With reference to figure 6, subsurface flow was assumed to be any flow below the mean elevation of the bed at a cross section. Runs 10A through 10C, 25A through 25D, and 24K through 24N were specifically for the purpose of determining the surface elevation of subsurface flow for a range of very small discharges and the maximum and minimum slope. These data were used for interpolating appropriate subsurface flow rates as a function of slope.

Discharge for all flows greater than about 1 ft^3/s was obtained by reading manometers attached to an orifice meter. The manometers were read 10 times and the readings averaged. The discharge was then obtained from a calibration chart. This procedure was repeated each time a set of water-surface elevations was obtained. A minimum of three sets of manometer readings were obtained for each run.

For discharges less than 1 ft^3/s, all water at the brink of the flume was routed into a small stilling basin and measured with a 30° V-notch sharp-crested weir. The number and frequency of point gage readings were as described above for the orifice manometer readings.

Velocity

A series of point velocities were obtained for selected stations for target discharges of 32, 16, and 4.5 ft^3/s for target slopes (henceforth referred to as slope) of 0.008, 0.013, and 0.018 for Series I roughness. Velocity profiles were obtained for similar discharges for a slope of 0.018 for Series II roughness.

A typical cross section showing the location of points where velocities were measured is shown in figure 4. For all runs the water-surface elevation (as determined by manometer readings for the station) was the reference horizontal datum. At each vertical traverse the first point velocity was measured 0.2 foot below the surface and from this point to near the bottom, every 0.2 foot. The meter was never placed closer than 0.1 foot to the bed, thus the unsampled depth ranged from 0.1 to 0.3 foot.

The measuring procedure was as follows:

1. The bed elevation at each of the 15 vertical traverses at the station had been previously determined (by measurement with the probe) and stored in the computer.

2. The water-surface elevation (determined from manometer readings) was entered into the computer.

3. The probe was appropriately zeroed and scaled, and the current meter was then attached.

4. The meter was positioned at the appropriate coordinates, and the x coordinate, y coordinate, increment of time, and number of revolutions of the meter during the increment of time were measured electronically and recorded. The computer was programmed to compute the lowest sampling point (see fig. 4) elevation at a traverse and display the information to the operator and thus prevent lowering the meter into the rocks.

The runs and stations where velocity profiles were obtained are shown in tables 1 and 2.

FLUME CHANNEL AND HYDRAULIC DATA

A description and analysis of the physical properties of the bed material, the bed elevation data, the computed statistical parameters associated with the bed elevation measurements, flume-clip elevations and procedure for determining bed elevations for the various longitudinal slopes, and the procedure used for measuring velocity within the cross section are presented under the heading Flume-Channel Data. Velocity measurements, orifice discharges, water-surface elevations, and discharges and energy coefficients obtained by integration of velocity data are presented and discussed under the heading Hydraulic Data.

Flume-Channel Data

Rock Properties

The size category and the color and average rock weight for each size category are shown in table 3.

The gradation of the as-built surface and the design gradation are shown in figure 7. The gradation of the as-built surface layer differed from the mixture placed in the flume. To minimize subsurface flow, the larger voids between rocks were filled with small rocks in the subsurface region. As a result, a larger portion of smaller material was placed in the unmeasured subsurface layer.

The lengths of the major axis, intermediate axis, and minor axis as measured with a caliper are shown for each rock for each rock size group in Appendix I A. The computed Corey shape factors (shape factor), defined as the minor axis/$\sqrt{\text{major axis x intermediate axis}}$, also are shown. The average value of axis length and shape factor and associated standard deviations also are shown for each sample of 30 rocks in a size category. The arithmetic average of the Corey shape factor for the six size categories is 0.61. With

Table 3.--Size categories and rock weight

[ft, foot; lb, pound]

Size passed (ft)	Size retained on (ft)	Color	Average weight (lb)
0.75	0.65	orange	29.5
0.65	0.55	green	21.4
0.55	0.45	white	14.7
0.45	0.35	yellow	7.7
0.35	0.25	blue	3.2
0.25	0.15	red	1.6

reference to figure 7, D_{50} of the surface material was 0.62 foot, D_{84} = 0.68 foot, and D_{16} = 0.52 foot. The gradation coefficient defined as $G = 1/2 \left(\frac{D_{84}}{D_{50}} + \frac{D_{50}}{D_{16}}\right)$ was 1.17. The specific gravity of the material ranged from 2.44 to 2.57 with an average of 2.49.

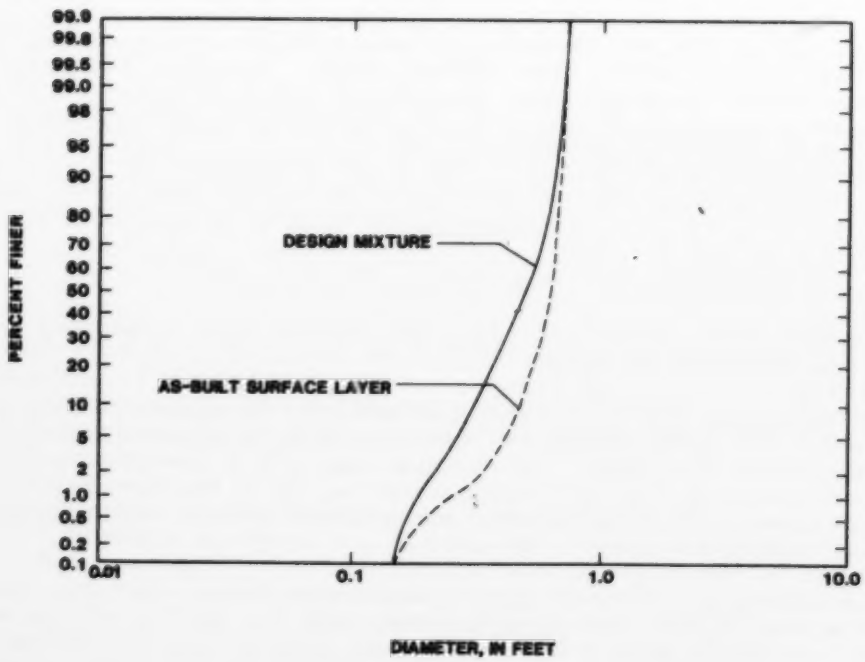

Figure 7.--Gradation curves: design mixture and as-build surface layer.

Bed Elevation Data

The bed elevation data for Series I and for Series II are presented in Appendix II A. The station shown is the station of the cross section, X-coor. is the horizontal coordinate of the point referenced to the left wall looking upstream, and elevation is the elevation of the probe tip resting on the bed.

Bed Elevations and Statistical Parameters

For each station the following statistical values were computer from the 885 data points at the station.

YM = The arithmetic mean elevation = $\sum_{0}^{885} Y_i/885$,

YV = The variance of elevations = $\sum_{0}^{885} (Y_i - YM)^2/885$,

YS = The skew of the elevations = $\sum_{0}^{885} (Y_i - YM)^3/885$,

YM4 = The kurtosis of elevations = $\sum_{0}^{885} (Y_i - YM)^4/885$,

SDYV = The standard deviation of YM [SDYV = $\sqrt{YV}$],

CSY = The coefficient of skew of YM [CSY = YS/(SDYV)(YV)],

dYMAX = ELYMAX - YM,

ELYMAX = The maximum point elevation at the station,

XMAX = x coordinate of ELYMAX referenced to left side of section,

ZMAX = z (longitudinal) coordinate of ELYMAX referenced to the upstream traverse for the station,

dYMIN = YM - ELYMIN,

ELYMIN = The minimum point elevation at the station,

XMIN = x coordinate of ELYMIN referenced to left side of section, and

ZMIN = z coordinate of ELYMIN referenced to the upstream traverse for the station.

The above information is presented in Appendix II B. YM is the average elevation of the bed at the station for the given bed roughness referenced to clip elevations obtained when the flume slope was set to 0.008, Series I roughness.

There were other types of information extracted from the bed elevation data. The bed was divided into three longitudinal strips. The statistical values of bed roughness for each of the strips were computed. The purpose of this analysis was to determine the uniformity of the bed roughness and to ensure that there was not bias in roughness or height of bed, that is, that one side of the bed was built consistently higher or rougher than the center strip or the other side. The results of this analysis are shown in figure 8 for Roughness I and figure 9 for Roughness II. Considering the small differences in magnitude of the various parameters from strip to strip, the large difference in elevation between maximum and minimum elevation at each station, and the pattern displayed in figures 8 and 9, the distribution of roughness was remarkably uniform throughout the test section.

Flume Clip Elevations

The flume clip elevations shown in Appendix II C are used to obtain bed elevation at a test station for all slopes other than 0.008, Series I roughness. Bed elevation (YM) at each test station with the slope of the flume at 0.008 is given in Appendix II B. Bed elevation for a test station for any of the other slopes are computed by using YM and the increment of change in elevation of the appropriate flume clips associated with the change in slope. As an example, with the flume set at a slope of 0.008, roughness 1, YM for Sta 72 is 4.414 feet (Appendix II B) and the average value of flume clip elevations, East Stations, is 6.256 feet (Appendix II C). To obtain the bed elevation at Sta 72, for a slope of 0.0155, Series I roughness, the average of clip elevations at Sta 72, East Stations, is 5.609 feet (Appendix II C). This value is subtracted from 6.256 feet indicating a change in elevation of the clip of - 0.647 foot. The elevation of the bed at Sta 72 with a slope of 0.0155 is 4.414 feet - 0.647 foot = 3.767 feet.

Average Bed Elevation at Vertical Velocity Traverses

The elevation of a narrow, short (0.2 foot wide by 0.8 foot long) strip of bed, the "footprint" for the meter, at each vertical where a velocity traverse was obtained also was computed from the bed elevation data. The mean of the 27 point elevations (fig. 10) was considered to be the bed elevation for computation of the increment of area associated with the lowest point velocity at that vertical traverse.

There were two reasons why the "footprint" elevation was used (rather than the average elevation of the bed one half way to each adjacent vertical) for computing the depth of the vertical. If the measurement had been made in the field, the meter would have been lowered to the bed and the computed flow depth would be the distance from the water surface to the point on the bed where the foot of the meter assembly rested. The "footprint" size approximates the outline of the meter and therefore would more closely simulate a field measurement. The second reason was that because of the large variation of the height of the top of the rocks, the average elevation of the bed one half way to each adjacent vertical was, in a few cases, above the elevation where the velocity was measured. This presented a computation dilemma. The selection of the "footprint" elevation eliminated this problem. The footprint elevation for each velocity traverse is shown in Appendix II D. Note that the elevations shown are for a slope of 0.008, Series I roughness, only. Footprint elevations for other slopes must be computed using the flume clip elevations for appropriate slope settings and the procedure described in the first paragraph under Flume Clip Elevations.

Station	↓ Flow ← 2.0 feet →	← 2.0 feet →	← 2.0 feet →
	4.942 ⊕	4.906	4.903
	5.276 ✲	5.232	5.258
1.2	4.538	4.445 Δ	4.538
	0.173 ❐	0.144	0.128
	4.840	4.838	4.863 ⊕
12	5.154	5.090	5.242 ✲
	4.368	4.352 Δ	4.447
	0.156 ❐	0.140	0.155
	4.770	4.787 ⊕	4.774
24	5.085	5.073	5.109 ✲
	4.231 Δ	4.364	4.388
	0.179 ❐	0.159	0.152
	4.738 ⊕	4.610	4.738 ⊕
30	5.109 ✲	4.818	5.093
	4.399	4.302 Δ	4.359
	0.146	0.129	0.153 ❐
	4.767 ⊕	4.647	4.704
36	5.083 ✲	5.032	5.032
	4.320	4.306	4.234 Δ
	0.169	0.163	0.185 ❐
	4.643	4.596	4.653 ⊕
42	4.966	4.908	5.037 ✲
	4.161 Δ	4.226	4.254
	0.186 ❐	0.161	0.170
	4.567	4.595	4.645 ⊕
48	4.834	4.917	4.928 ✲
	4.172	4.096 Δ	4.297
	0.164	0.179 ❐	0.146
	4.474	4.530	4.555 ⊕
54	4.757	4.832 ✲	4.773
	4.067	4.063 Δ	4.172
	0.163 ❐	0.163	0.123
	4.481	4.563 ⊕	4.556
60	4.755	4.878	4.906 ✲
	3.971 Δ	4.130	4.003
	0.167	0.130	0.178 ❐
	4.390 ⊕	4.322	4.363
66	4.703	4.626	4.729 ✲
	3.937 Δ	3.993	3.945
	0.172 ❐	0.157	0.157
	4.434 ⊕	4.392	4.415
72	4.888 ✲	4.779	4.812
	3.943 Δ	3.961	3.994
	0.187 ❐	0.176	0.162
	4.276	4.297	4.319 ⊕
78	4.546	4.725 ✲	4.632
	3.943 Δ	3.944	3.997
	0.125	0.164 ❐	0.160
	4.272	4.316 ⊕	4.268
84	4.618	4.638	4.700 ✲
	3.947 Δ	3.949	3.870
	0.178	0.177	0.190 ❐
	4.130	4.125	4.137 ⊕
96	4.481	4.453	4.564 ✲
	3.832 Δ	3.832 Δ	3.832 Δ
	0.162	0.164	0.167 ❐
	3.934	3.903	3.955 ⊕
107	4.318	4.197	4.389 ✲
	3.576	3.543 Δ	3.545
	0.133	0.155	0.181 ❐

EXPLANATION

⊕ Maximum value of mean elevation (feet)

✲ Maximum point elevation (feet)

Δ Minimum point elevation (feet)

❐ Maximum value of standard deviation (roughness) (feet)

Symbols are typical for each station.

Figure 8.--Plan view of bed showing mean elevation maximum elevation, minimum elevation, and standard deviation (roughness) for 2-foot wide longitudinal strips at each station (Roughness I).

↓ Flow

Station	← 2.0 feet →	← 2.0 feet →	← 2.0 feet →
12	4.858 ⊕ 5.056 4.504 0.139 ❐	4.844 5.097 ✲ 4.480 0.130	4.798 5.080 4.415 Δ 0.128
24	4.740 5.012 4.364 Δ 0.161 ❐	4.801 ⊕ 5.103 ✲ 4.395 0.146	4.745 5.079 4.431 0.132
36	4.685 4.916 4.387 0.120	4.701 ⊕ 4.922 4.331 Δ 0.137	4.669 4.946 ✲ 4.331 Δ 0.152 ❐
42	4.645 ⊕ 4.883 4.227 Δ 0.118	4.653 4.946 4.349 0.138	4.679 ⊕ 4.950 ✲ 4.353 0.139 ❐
48	4.539 4.811 4.199 Δ 0.116	4.542 4.772 4.240 0.135	4.602 ⊕ 4.863 ✲ 4.272 0.146 ❐
54	4.502 4.678 4.128 0.129 ❐	4.448 4.670 4.146 0.118	4.518 ⊕ 4.734 ✲ 4.087 Δ 0.120
60	4.452 4.665 4.072 Δ 0.126	4.495 4.679 4.147 0.103	4.534 ⊕ 4.784 ✲ 4.181 0.137 ❐
66	4.437 ⊕ 4.665 ✲ 4.087 0.124	4.361 4.625 4.028 0.133 ❐	4.389 4.633 4.008 Δ 0.125
72	4.338 4.538 3.961 0.115	4.287 4.494 3.853 Δ 0.147	4.374 ⊕ 4.660 ✲ 3.904 0.151 ❐
84	4.226 ⊕ 4.416 3.846 0.116	4.179 4.466 ✲ 3.796 Δ 0.152 ❐	4.217 4.445 3.889 0.131
96	4.109 4.353 3.865 0.111	4.136 4.369 3.849 Δ 0.128	4.169 ⊕ 4.458 ✲ 3.869 0.159 ❐

EXPLANATION

⊕ Maximum value of mean elevation (feet)

✲ Maximum point elevation (feet)

Δ Minimum point elevation (feet)

❐ Maximum value of standard deviation (roughness) (feet)

Symbols are typical for each station.

Figure 9.--Plan view of bed showing mean elevation, maximum elevation, minimum elevation, and standard deviation (roughness) for 2-foot wide longitudinal strips at each station (Roughness II).

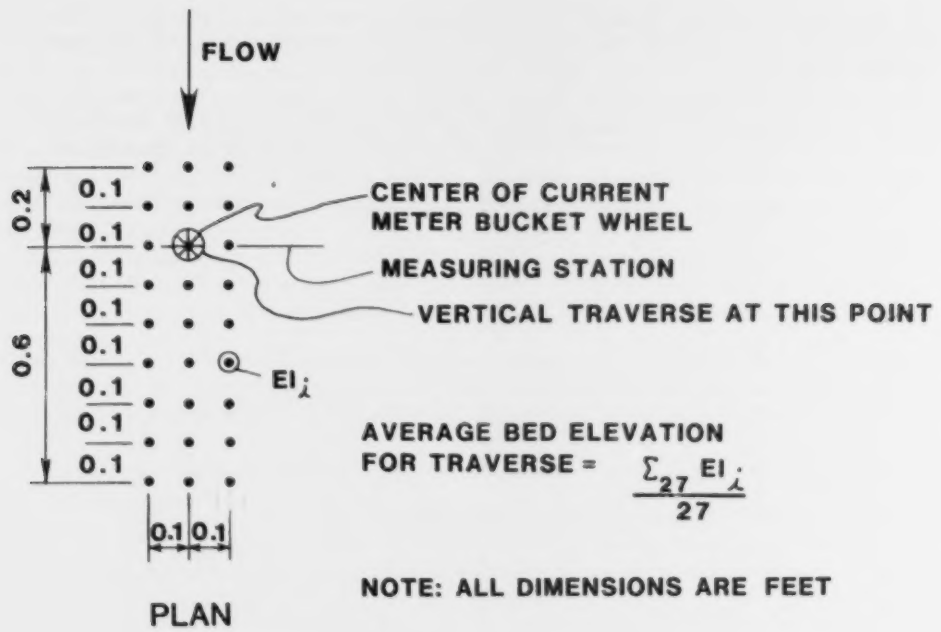

Figure 10.--Plan view showing footprint area under meter and location of meter axis.

Hydraulic Data

Velocity Measurements

All velocity traverse data are presented in Appendix III A. Velocity traverse data were obtained for target discharges of 32, 16, and 4.5 ft^3/s for selected slopes. Run number, calibration equation for the meter, target slope, roughness series, station, and water temperature are presented at the top of each data set. HT is the approximate flow depth at the traverse as determined by sounding with the probe. Horiz is the horizontal distance from the left wall looking upstream, vert is the elevation of the point velocity, and velo is the measured point velocity. The location where point velocities were measured is shown on figure 4.

The velocity data were used to examine the variation in the energy coefficient, alpha (α), from section to section, for a check of flow continuity from section to section, to determine the accuracy of flow measurements with shallow depths and large roughness, and for the larger flows, to obtain data for the computations of boundary shears for refinement of sidewall correction factors. Some of the velocity traverse data are unsatisfactory. This will be discussed in the Integrated Discharge and Alpha Values section.

Orifice Discharges and Water-Surface Elevations

The arithmetic average of orifice discharges, the standard deviation of the discharges, and the number of sets of discharge measurements are shown for each run in Appendix III B. Also, the arithmetic average and the standard

deviation of the water-surface elevation at each station is shown. The number of blocks indicates the number of times the water-surface elevation was measured during the run.

The quality of the orifice discharge measurements and the measured water-surface elevation are judged to be excellent. Standard deviation of discharge measurements were small, generally less than 0.002 ft^3/s. Standard deviation of the water-surface elevations generally averaged less than 0.003 foot.

Integrated Discharges and Alpha Values

The integrated discharge (Q), the average velocity (VAVE), momentum coefficient (β), and energy coefficient (α) for the entire cross section were computed for each cross section where velocity profile data were obtained.

The various parameters were computed as follows:

Discharge for the section = $Q = \Sigma_n V_n (\Delta A_n)$.

ΔA_n is the increment of area associated with V_n as defined in figure 11.

V_n is the point velocity, see figure 11 for location.

Average velocity for the section: $VAVE = Q/\Sigma_n(\Delta A_n)$.

The momentum coefficient for the section: beta (β) = $\dfrac{\Sigma_n V^2_n (\Delta A_n)}{(VAVE)^2 A}$.

The energy coefficient for the section: alpha (α) = $\dfrac{\Sigma_n V^3_n (\Delta A_n)}{(VAVE)^3 A}$.

Area of the section = $A = \Sigma_n \Delta A_n$.

The orifice discharge, the station where velocities were measured, integrated discharges, and alpha values are summarized in tables 1 and 2. The reader is referred to these tables for side-by-side comparison of parameters.

It was anticipated that integrated discharges for the Q = 4.5 ft^3/s runs (Run 5, 8A, 13C, 16A, and 24C) would vary substantially from the orifice discharges. At 4.5 ft^3/s there were a few rocks protruding through the water surface and there were many vertical traverses where flow depth was less than 0.3 foot and therefore no point velocities were obtained. Additionally, the wheel of the pygmy meter was fixed in the horizontal plane. In cases where there was large rock immediately upstream or downstream of the measuring traverse, there was obviously a substantial vertical component (pitch) of velocity. It is known that output from a wheel cup meter must be adjusted when there is a substantial pitch to the velocity impinging on the wheel. Though we had initially planned to develop a probe to measure pitch angles at some of the points where it was severe, time and budget limitations precluded the development and use of the pitch probe and therefore no measured pitch angles were available for correcting meter output.

Also, because the major purpose of the study was a roughness study with uniform relative roughness throughout the reach, there was no "smoothing of the bed" by removal or rearrangement of large material and preparation of a "measuring section" as may occur where field measurements are obtained. Thus, the accuracy of measured discharge in the flume cannot be directly compared to results obtained in the field.

As noted in tables 1 and 2, because of the absence of velocity data in certain vertical traverses, it was necessary to examine the data, prorate the area where velocities were not measured to the nearest measured point velocity, and perform the computations by hand. Most integrated discharge for the 4.5 ft^3/s flow values are consistently less than those obtained using orifice measurements.

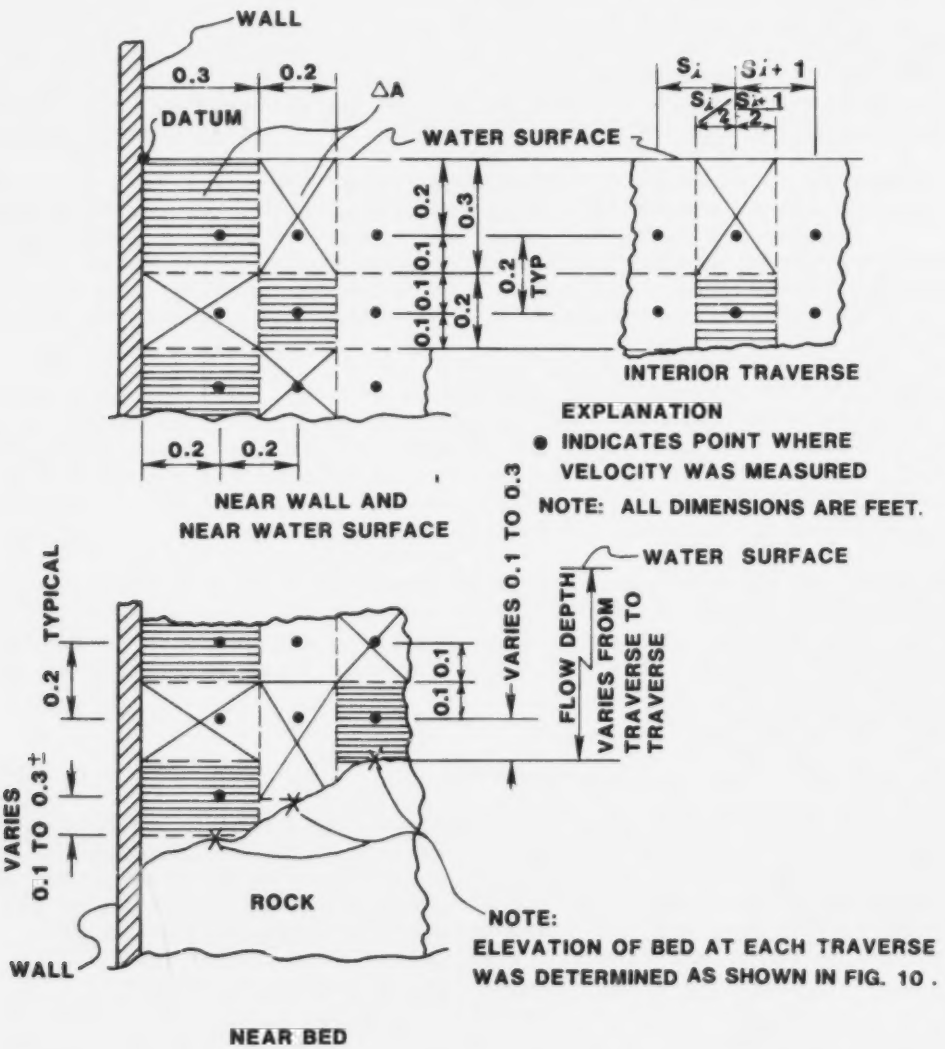

Figure 11.--Incremental areas associated with point velocities that were used for computing integrated discharges.

The integrated discharges for Runs 1, 12, 16F, 24H, and 24J are all within a reasonable range of the orifice discharge corrected for subsurface flow. The integrated discharges for Runs 2, 6, 7, 13, 16F, 16H, and 17ABC are substantially different from the orifice discharges. Data from Runs 1 and 6 were examined in detail. The mean flow depths for Run 6 were a few hundreds of a foot larger than the mean flow depths for Run 1, consistent with the slight differences in discharges. There were no apparent variation in water-surface elevation and orifice discharge taken before and after each set of velocity measurements at a station. The flow areas used to compute the integrated discharges appear to be reasonable.

Several vertical-velocity profiles from Run 6 were superimposed on plotted velocity profile at the same traverse for Run 1. All profiles were very similar in shape but the magnitude of the velocity vectors for Run 6 were consistently smaller (the plotted points were displaced in proportion to the ratio of integrated discharge). This indicated a problem with the system used to measure velocities. Data for Run 6 could be corrected by applying a constant multiplier (the average integrated discharge for Run 1 divided by the average integrated discharge for Run 6) to each point velocity. The integrated discharges for Run 16H cannot reasonably be adjusted in this manner.

All data were processed and discharges were integrated in a preliminary manner within a day or two of when they were collected so we were immediately aware of the problem. A different meter was tried for ensuing runs and also both meters were recalibrated (meters were calibrated several times throughout the experiment including after the final set of measurements). No significant change in calibration of either meter was detectable throughout the period when data were collected.

Because of the uncertainties associated with the velocity measurements, the fact that velocity data were not needed for the computing roughness values (the main objective of the study), and because of time and money constraints, the velocity data-collection program for Series II runs was substantially curtailed. The velocity traverses where integrated discharges are within ± 5 percent of orifice discharges will be utilized as planned.

The computed alpha values (correction coefficient for nonuniform velocity) are generally similar from section to section for discharges of 32 and 16.5 ft^3/s. For all stations between 36 and 84, the flow depth is essentially constant for each run and therefore there was very little variation in average velocity from station to station.

SUMMARY

Hydraulic data for 103 runs in a shallow, high-gradient open-channel flume with large bed material have been presented. The bed surface was natural rock ranging in size from 0.15 to 0.75 foot. Tests were conducted for two arrangements of the same rock, one having a standard deviation of bed elevation of 0.168 foot, and the other having a standard deviation of 0.133 foot. The bed material was stable for all flows that ranged from 0.7 to 32.1 ft^3/s and for all bed slopes that ranged from 0.008 to 0.018.

APPENDIX I

A. Rock properties. All dimensions are in feet.

ROCK SIZE/SHAPE DATA - size 0.75-0.65, rough=1

A MAJOR	X I INTER	S MINOR	SHAPE FACT.	A MAJOR	X I INTER	S MINOR	SHAPE FACT.
0.855	0.773	0.573	0.705	0.971	0.751	0.478	0.560
0.783	0.681	0.530	0.726	0.968	0.805	0.542	0.614
0.841	0.728	0.389	0.497	1.133	0.727	0.469	0.517
0.907	0.806	0.338	0.395	0.969	0.645	0.560	0.708
0.993	0.684	0.399	0.484	1.046	0.758	0.632	0.710
0.893	0.730	0.389	0.482	0.955	0.855	0.468	0.518
0.929	0.785	0.477	0.559	0.888	0.666	0.635	0.826
0.785	0.647	0.526	0.738	0.834	0.618	0.576	0.802
1.185	0.750	0.466	0.494	1.028	0.785	0.343	0.382
1.135	0.792	0.454	0.479	0.775	0.630	0.476	0.681
0.822	0.723	0.684	0.887	0.735	0.702	0.577	0.803
0.906	0.832	0.541	0.623	0.655	0.695	0.542	0.803
0.904	0.735	0.426	0.523	0.899	0.725	0.632	0.783
1.016	0.591	0.572	0.738	0.965	0.788	0.398	0.456
0.953	0.745	0.507	0.602	0.976	0.745	0.604	0.708

ROCK PARAMETER - 30 SAMPLES	AVERAGE	STD. DEVIATION
MAJOR AXIS LENGTH	0.923	0.1171
INTERMEDIATE AXIS LENGTH	0.730	0.0636
MINOR AXIS LENGTH	0.507	0.0890
SHAPE FACTOR	0.627	0.1383

ROCK SIZE/SHAPE DATA - size 0.65-0.55, rough=1

A MAJOR	X I INTER	S MINOR	SHAPE FACT.	A MAJOR	X I INTER	S MINOR	SHAPE FACT.
0.800	0.722	0.490	0.645	0.920	0.784	0.324	0.381
0.707	0.685	0.473	0.680	0.935	0.694	0.403	0.500
0.865	0.681	0.371	0.483	0.715	0.658	0.359	0.523
0.811	0.716	0.650	0.853	0.865	0.684	0.388	0.504
0.868	0.694	0.385	0.496	0.981	0.681	0.459	0.562
0.904	0.675	0.484	0.620	1.005	0.779	0.420	0.475
0.847	0.698	0.369	0.480	1.062	0.680	0.465	0.547
0.818	0.712	0.308	0.404	0.845	0.698	0.319	0.415
1.087	0.700	0.463	0.531	0.811	0.680	0.578	0.778
0.714	0.641	0.392	0.579	0.704	0.674	0.235	0.341
0.868	0.720	0.620	0.784	0.909	0.692	0.265	0.334
0.993	0.597	0.382	0.496	1.108	0.853	0.397	0.408
0.731	0.731	0.330	0.451	1.028	0.701	0.378	0.445
0.960	0.633	0.552	0.708	1.063	0.723	0.311	0.355
0.729	0.677	0.527	0.750	0.878	0.869	0.330	0.378

ROCK PARAMETER - 30 SAMPLES	AVERAGE	STD. DEVIATION
MAJOR AXIS LENGTH	0.884	0.1179
INTERMEDIATE AXIS LENGTH	0.704	0.0553
MINOR AXIS LENGTH	0.414	0.0995
SHAPE FACTOR	0.530	0.1387

ROCK SIZE/SHAPE DATA - size 0.55-0.45, rough=1

A MAJOR	X I INTER	S MINOR	SHAPE FACT.	A MAJOR	X I INTER	S MINOR	SHAPE FACT.
0.640	0.600	0.425	0.686	0.824	0.538	0.460	0.691
0.618	0.551	0.258	0.442	0.756	0.528	0.365	0.578
0.565	0.495	0.377	0.713	0.734	0.488	0.478	0.799
0.638	0.627	0.389	0.615	0.934	0.522	0.455	0.652
0.730	0.676	0.373	0.531	0.758	0.550	0.528	0.818
1.000	0.595	0.374	0.485	0.767	0.496	0.461	0.747
0.823	0.655	0.458	0.624	0.930	0.633	0.268	0.349
0.727	0.587	0.423	0.648	0.672	0.509	0.300	0.513
0.688	0.497	0.328	0.561	0.747	0.521	0.521	0.835
0.564	0.521	0.401	0.740	0.788	0.549	0.321	0.488
0.739	0.563	0.326	0.505	0.693	0.601	0.483	0.748
0.869	0.559	0.509	0.730	0.810	0.568	0.453	0.668
0.770	0.632	0.449	0.644	0.879	0.649	0.355	0.470
0.816	0.602	0.388	0.554	0.689	0.528	0.478	0.793
0.740	0.740	0.393	0.531	0.714	0.553	0.481	0.765

ROCK PARAMETER - 30 SAMPLES	AVERAGE	STD. DEVIATION
MAJOR AXIS LENGTH	0.754	0.1017
INTERMEDIATE AXIS LENGTH	0.571	0.0602
MINOR AXIS LENGTH	0.409	0.0721
SHAPE FACTOR	0.631	0.1238

ROCK SIZE/SHAPE DATA - size 0.45-0.35, rough=1

A MAJOR	X I INTER	S MINOR	SHAPE FACT.	A MAJOR	X I INTER	S MINOR	SHAPE FACT.
0.789	0.435	0.405	0.691	0.490	0.475	0.266	0.551
0.451	0.425	0.347	0.793	0.645	0.507	0.348	0.609
0.745	0.463	0.310	0.528	0.622	0.463	0.252	0.470
0.696	0.402	0.397	0.751	0.651	0.528	0.220	0.375
0.568	0.370	0.346	0.755	0.576	0.441	0.331	0.657
0.560	0.359	0.301	0.671	0.485	0.390	0.281	0.646
0.767	0.495	0.372	0.604	0.573	0.552	0.299	0.532
0.645	0.445	0.365	0.681	0.615	0.451	0.330	0.627
0.581	0.505	0.254	0.469	0.766	0.475	0.259	0.429
0.511	0.421	0.274	0.591	0.799	0.462	0.351	0.578
0.582	0.376	0.303	0.648	0.676	0.523	0.366	0.616
0.602	0.467	0.342	0.645	0.574	0.490	0.273	0.515
0.576	0.458	0.455	0.886	0.590	0.416	0.391	0.789
0.731	0.521	0.253	0.410	0.673	0.578	0.287	0.460
0.475	0.387	0.368	0.858	0.482	0.448	0.345	0.742

ROCK PARAMETER - 30 SAMPLES	AVERAGE	STD. DEVIATION
MAJOR AXIS LENGTH	0.617	0.0965
INTERMEDIATE AXIS LENGTH	0.458	0.0537
MINOR AXIS LENGTH	0.323	0.0542
SHAPE FACTOR	0.619	0.1288

ROCK SIZE/SHAPE DATA - size 0.35-0.25, rough=1

A MAJOR	X INTER	I MINOR	S SHAPE FACT.	A MAJOR	X INTER	I MINOR	S SHAPE FACT.
0.496	0.359	0.359	0.851	0.312	0.285	0.216	0.724
0.438	0.322	0.321	0.855	0.363	0.306	0.132	0.396
0.411	0.342	0.275	0.733	0.446	0.381	0.234	0.568
0.439	0.318	0.241	0.645	0.488	0.292	0.252	0.668
0.532	0.463	0.230	0.463	0.434	0.361	0.259	0.654
0.467	0.278	0.206	0.572	0.508	0.378	0.245	0.559
0.452	0.334	0.225	0.579	0.605	0.334	0.314	0.699
0.599	0.347	0.347	0.761	0.397	0.322	0.158	0.442
0.465	0.374	0.325	0.779	0.543	0.290	0.227	0.572
0.347	0.292	0.145	0.456	0.381	0.328	0.325	0.919
0.393	0.336	0.173	0.476	0.377	0.340	0.251	0.701
0.487	0.320	0.317	0.803	0.392	0.342	0.190	0.519
0.451	0.355	0.277	0.692	0.403	0.388	0.161	0.407
0.490	0.398	0.214	0.485	0.402	0.328	0.273	0.752
0.446	0.361	0.243	0.606	0.368	0.331	0.245	

ROCK PARAMETER - 30 SAMPLES	AVERAGE	STD. DEVIATION
MAJOR AXIS LENGTH	0.444	0.0686
INTERMEDIATE AXIS LENGTH	0.340	0.0382
MINOR AXIS LENGTH	0.246	0.0591
SHAPE FACTOR	0.635	0.1392

ROCK SIZE/SHAPE DATA - size 0.25-0.15, rough=1

A MAJOR	X INTER	I MINOR	S SHAPE FACT.	A MAJOR	X INTER	I MINOR	S SHAPE FACT.
0.344	0.229	0.229	0.816	0.398	0.273	0.239	0.725
0.489	0.246	0.246	0.709	0.417	0.228	0.188	0.610
0.432	0.242	0.200	0.619	0.242	0.167	0.119	0.592
0.330	0.244	0.189	0.666	0.359	0.215	0.178	0.641
0.360	0.270	0.118	0.378	0.492	0.202	0.130	0.412
0.503	0.282	0.160	0.425	0.319	0.319	0.166	0.520
0.292	0.292	0.167	0.572	0.524	0.242	0.190	0.534
0.283	0.259	0.178	0.657	0.481	0.237	0.237	0.702
0.255	0.180	0.179	0.836	0.404	0.252	0.188	0.589
0.347	0.275	0.184	0.596	0.318	0.233	0.232	0.852
0.385	0.288	0.179	0.538	0.406	0.262	0.152	0.466
0.322	0.250	0.137	0.483	0.338	0.303	0.117	0.366
0.352	0.288	0.196	0.616	0.306	0.272	0.200	0.693
0.421	0.248	0.233	0.721	0.315	0.312	0.142	0.453
0.299	0.261	0.164	0.587	0.300	0.262	0.208	0.742

ROCK PARAMETER - 30 SAMPLES	AVERAGE	STD. DEVIATION
MAJOR AXIS LENGTH	0.368	0.0746
INTERMEDIATE AXIS LENGTH	0.254	0.0346
MINOR AXIS LENGTH	0.182	0.0366
SHAPE FACTOR	0.604	0.1286

APPENDIX II

A. Bed elevation data, Roughness 1 and Roughness 2.

The left column is the x coordinate (distance from left wall looking upstream) and the column headings are stations along the centerline of the flume. All dimensions are in feet.

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
0.1	4.635	4.651	4.592	4.788	4.812	5.032	5.199	5.213	5.189	5.155	4.824	4.913	4.939	4.943	4.929
0.2	4.675	4.675	4.738	4.895	5.155	5.260	5.262	5.232	5.215	5.199	5.151	4.937	4.949	4.951	4.947
0.3	4.546	4.772	4.873	4.911	5.238	5.276	5.270	5.248	5.226	5.213	5.167	4.933	4.941	4.937	4.949
0.4	4.538	4.853	4.893	4.893	5.203	5.272	5.264	5.252	5.228	5.199	5.103	4.925	4.929	4.937	4.998
0.5	4.562	4.820	4.871	4.865	5.165	5.256	5.248	5.228	5.191	5.026	4.933	4.953	4.949	4.949	5.060
0.6	4.554	4.748	4.834	4.836	5.103	5.191	5.161	5.119	4.836	4.919	4.941	4.965	4.965	4.945	5.125
0.7	4.594	4.550	4.756	4.740	4.609	5.098	4.800	4.772	4.889	4.947	4.969	4.927	4.907	5.058	5.173
0.8	4.647	4.641	4.544	4.546	4.588	4.796	4.790	4.921	4.973	4.949	4.951	4.953	4.885	5.062	5.159
0.9	4.653	4.643	5.080	5.030	4.969	4.911	4.756	4.947	4.992	4.986	4.723	4.885	4.905	4.998	5.135
1.0	4.651	5.119	5.125	5.094	5.022	4.957	4.903	4.953	4.990	4.986	4.917	4.909	4.937	4.897	5.002
1.1	4.647	5.111	5.121	5.101	5.054	5.002	4.943	4.937	4.969	4.951	4.933	4.905	4.941	4.961	4.726
1.2	4.623	5.036	5.109	5.098	5.062	5.010	4.961	4.909	4.915	4.921	4.921	4.883	4.965	4.994	4.857
1.3	4.538	5.062	5.094	5.098	5.080	5.022	4.973	4.644	4.885	4.899	4.820	4.857	4.961	4.996	4.969
1.4	4.558	4.554	5.072	5.084	5.070	5.030	4.961	4.723	4.820	4.758	4.655	4.732	4.939	4.963	4.933
1.5	4.818	4.796	4.661	4.746	4.913	4.945	4.919	4.562	4.627	4.699	4.798	4.877	4.901	4.957	5.034
1.6	4.869	4.840	4.810	4.824	4.941	4.965	4.919	4.804	4.776	4.760	4.949	5.022	5.080	5.111	5.135
1.7	4.909	4.893	4.861	4.869	4.933	4.957	4.909	4.830	4.792	4.927	5.038	5.105	5.163	5.183	5.189
1.8	4.957	4.931	4.909	4.889	4.921	4.941	4.897	4.840	4.798	4.978	5.111	5.165	5.189	5.191	5.187
1.9	4.969	4.982	4.959	4.879	4.901	4.913	4.848	4.846	4.822	5.022	5.135	5.171	5.175	5.171	5.153
2.0	4.820	4.969	4.982	4.613	4.619	4.857	4.941	4.973	4.832	4.796	5.092	5.123	5.127	5.123	5.098
2.1	4.594	4.776	4.885	4.594	4.655	4.877	4.961	4.990	4.921	4.788	4.996	5.046	5.050	4.978	4.911
2.2	4.679	4.657	4.764	4.933	5.086	5.135	5.092	5.058	4.917	4.445	4.695	4.836	4.832	4.800	4.728
2.3	4.691	4.673	4.621	5.034	5.159	5.211	5.207	5.086	4.840	4.840	4.848	4.846	4.838	4.802	4.784
2.4	4.691	4.679	4.726	5.098	5.169	5.228	5.232	5.064	4.865	4.877	4.873	4.861	4.853	4.853	4.836
2.5	4.784	4.824	4.990	5.086	5.135	5.191	5.226	5.086	4.957	4.905	4.893	4.875	4.873	4.865	4.863
2.6	4.901	4.919	4.982	5.058	5.103	5.155	5.199	5.125	4.909	4.923	4.913	4.893	4.885	4.879	4.873
2.7	4.984	4.998	4.913	5.020	5.070	5.123	5.167	5.151	4.893	4.931	4.927	4.909	4.897	4.893	4.877
2.8	5.014	4.994	4.532	4.925	5.022	5.064	5.082	4.788	4.873	4.929	4.929	4.917	4.905	4.897	4.699
2.9	4.992	4.931	4.542	4.590	4.588	4.715	4.772	4.784	4.772	4.905	4.921	4.909	4.889	4.853	4.812
3.0	4.861	4.800	4.865	4.877	4.861	4.705	4.728	4.758	4.760	4.760	4.663	4.740	4.824	4.961	4.994
3.1	4.473	4.873	4.913	4.909	4.913	4.901	4.865	4.820	4.570	4.580	4.629	4.728	4.947	5.022	5.034
3.2	4.804	4.877	4.917	4.915	4.917	4.913	4.901	4.857	4.588	4.857	4.848	4.760	4.992	5.024	5.046
3.3	4.726	4.788	4.836	4.877	4.893	4.903	4.885	4.832	4.905	4.917	4.905	4.853	4.965	5.014	5.058
3.4	4.800	4.861	4.919	4.947	4.657	4.726	4.925	4.933	4.921	4.943	4.935	4.909	4.873	5.002	5.058
3.5	4.824	4.893	4.949	5.002	5.034	4.723	4.959	4.903	4.949	4.965	4.965	4.937	4.897	4.726	5.048
3.6	4.844	4.915	4.969	5.026	5.068	5.078	4.978	4.984	4.957	4.949	4.969	4.945	4.901	4.728	4.705
3.7	4.873	4.941	5.004	5.062	5.101	5.123	5.046	4.986	4.967	4.957	4.945	4.913	4.728	4.728	4.723
3.8	4.893	4.967	5.034	5.092	5.119	5.147	5.066	4.971	4.982	4.969	4.963	4.953	4.842	4.728	4.730
3.9	4.905	4.990	5.070	5.127	5.177	5.153	5.090	4.927	4.994	4.994	4.980	4.961	4.869	4.728	4.740
4.0	4.921	5.002	5.086	5.151	5.191	5.159	5.054	4.990	5.018	5.016	4.963	4.879	4.800	4.740	4.750
4.1	4.921	5.014	5.078	5.062	5.078	5.054	4.836	4.758	5.006	4.969	4.877	4.723	4.744	4.752	4.764
4.2	4.808	4.836	4.877	4.893	4.840	4.830	4.861	4.756	4.982	4.885	4.550	4.734	4.752	4.764	4.774
4.3	4.861	4.883	4.919	4.949	4.933	4.796	4.812	4.788	4.913	4.909	4.836	4.740	4.760	4.774	4.782
4.4	4.889	4.925	4.965	4.986	4.969	4.909	4.857	4.832	4.927	4.925	4.853	4.748	4.764	4.772	4.760
4.5	4.885	4.949	4.965	5.002	4.996	4.937	4.917	4.861	4.867	4.889	4.800	4.728	4.732	4.772	4.788
4.6	4.803	4.953	4.984	5.002	4.990	4.877	4.921	4.889	4.728	4.647	4.816	4.855	4.879	4.885	4.889
4.7	4.842	4.901	4.965	4.941	4.877	4.949	4.992	5.022	4.990	4.905	4.943	4.901	4.969	4.959	4.945
4.8	4.901	4.933	4.949	4.887	4.907	4.969	5.022	5.030	5.030	4.949	5.002	5.014	5.008	5.002	4.982
4.9	4.893	4.929	4.935	4.808	4.873	4.935	5.006	5.022	4.990	4.949	5.006	5.022	5.026	5.014	4.998
5.0	4.760	4.937	4.824	4.708	4.853	4.913	4.969	4.978	4.857	4.768	4.969	5.098	5.163	5.238	4.990
5.1	4.982	5.014	5.006	4.901	4.812	4.873	4.909	4.857	4.623	4.732	4.814	5.159	5.258	5.254	5.181
5.2	4.988	5.006	5.006	4.988	4.917	4.792	4.804	4.721	4.873	4.897	4.861	5.119	5.193	5.246	5.215
5.3	4.955	4.957	4.957	4.961	4.941	4.353	4.625	4.542	4.949	4.945	4.925	4.893	5.072	5.111	5.125
5.4	4.905	4.917	4.921	4.917	4.901	4.302	4.840	4.783	4.973	4.980	4.957	4.913	4.877	4.961	4.957
5.5	4.619	4.653	4.857	4.871	4.824	4.933	4.969	4.693	4.994	4.992	4.976	4.929	4.899	4.728	4.889
5.6	4.552	4.562	4.730	4.881	4.933	4.917	4.919	4.786	5.006	5.010	5.006	4.953	4.929	4.859	4.953
5.7	4.643	4.538	4.871	4.929	4.879	4.836	4.810	4.603	5.026	5.042	5.042	5.014	4.965	4.877	4.971
5.8	4.631	4.627	4.704	4.861	4.804	4.885	4.867	4.802	5.018	5.042	5.046	5.018	4.969	4.851	4.994
5.9	4.645	4.625	4.560	4.711	4.805	4.913	4.869	4.804	4.978	5.002	4.992	4.903	4.917	4.740	4.909

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7
0.1	4.607	4.728	4.615	4.834	4.881	4.899	4.854	4.773	4.733	4.840	4.850	4.745	4.619	4.435	4.648
0.2	4.816	4.792	4.929	4.969	4.967	4.937	4.846	4.765	4.805	4.943	4.951	4.838	4.726	4.658	4.676
0.3	4.788	4.945	5.016	5.030	5.004	4.923	4.816	4.735	4.874	4.975	5.016	4.935	4.830	4.720	4.741
0.4	4.770	4.992	5.058	5.054	4.994	4.897	4.793	4.718	4.870	4.955	5.008	5.000	4.899	4.769	4.781
0.5	4.744	4.929	5.060	5.048	4.965	4.877	4.765	4.668	4.510	4.899	4.955	4.919	4.749	4.771	4.793
0.6	5.012	4.844	5.030	5.014	4.933	4.840	4.733	4.765	4.704	4.627	4.546	4.510	4.652	4.722	4.733
0.7	5.030	4.988	4.945	4.933	4.752	4.836	4.878	4.866	4.818	4.720	4.639	4.625	4.575	4.542	4.579
0.8	5.034	5.004	4.961	4.893	4.808	4.897	4.919	4.931	4.919	4.801	4.781	4.686	4.571	4.621	4.668
0.9	5.040	5.002	4.967	4.935	4.832	4.865	4.915	4.935	4.899	4.858	4.749	4.660	4.583	4.672	4.684
1.0	5.046	5.014	4.971	4.935	4.820	4.760	4.866	4.894	4.876	4.830	4.726	4.639	4.603	4.672	4.678
1.1	5.046	5.018	4.980	4.943	4.574	4.647	4.777	4.830	4.854	4.789	4.720	4.613	4.591	4.656	4.652
1.2	5.050	5.022	4.978	4.671	4.679	4.756	5.034	5.081	5.008	4.878	4.660	4.429	4.573	4.617	4.611
1.3	4.897	4.967	4.945	4.927	4.663	4.895	5.097	5.135	5.093	5.018	4.868	4.724	4.538	4.575	4.558
1.4	4.762	4.933	4.953	4.945	4.913	4.953	5.129	5.154	5.129	5.073	4.986	4.854	4.664	4.514	4.494
1.5	4.695	4.863	4.953	4.945	4.921	5.030	5.107	5.105	5.105	5.065	4.998	4.927	4.783	4.684	4.589
1.6	4.990	4.953	4.917	4.943	4.919	4.986	5.058	5.028	4.996	4.955	4.909	4.897	4.757	4.807	4.787
1.7	4.978	4.986	4.980	4.903	4.919	4.772	4.822	4.886	4.830	4.809	4.856	4.818	4.779	4.846	4.836
1.8	4.947	4.955	4.953	4.933	4.840	4.824	4.769	4.923	4.959	4.838	4.368	4.569	4.826	4.862	4.846
1.9	4.941	4.933	4.913	4.875	4.510	4.788	4.791	5.008	5.016	4.975	4.465	4.558	4.805	4.834	4.777
2.0	4.885	4.861	4.840	5.026	4.971	4.851	4.951	5.018	5.004	4.959	4.473	4.560	4.595	4.781	4.818
2.1	4.832	4.816	5.026	5.066	5.070	4.984	5.020	5.016	4.969	4.927	4.834	4.352	4.530	4.753	4.785
2.2	4.857	4.840	5.028	5.046	5.058	5.016	5.022	4.996	4.947	4.911	4.720	4.739	4.656	4.700	4.793
2.3	4.853	4.840	4.982	5.002	4.986	5.034	5.016	4.984	4.941	4.886	4.781	4.781	4.660	4.779	4.842
2.4	4.842	4.820	4.778	4.869	5.034	5.034	5.020	4.992	4.931	4.785	4.801	4.801	4.637	4.836	4.899
2.5	4.820	4.764	4.927	5.050	5.046	5.040	5.026	4.984	4.769	4.805	4.816	4.809	4.615	4.842	4.917
2.6	4.748	4.538	5.044	5.058	5.042	5.030	5.006	4.797	4.814	4.834	4.850	4.830	4.753	4.842	4.899
2.7	4.596	4.851	5.034	5.030	5.016	4.998	4.587	4.814	4.846	4.856	4.866	4.844	4.781	4.850	4.921
2.8	4.667	4.647	4.768	4.784	4.518	4.510	4.546	4.852	4.868	4.862	4.838	4.785	4.795	4.899	4.953
2.9	5.034	4.695	4.681	4.663	4.728	4.752	4.745	4.753	4.797	4.676	4.741	4.733	4.720	4.834	4.911
3.0	5.062	4.695	4.659	4.768	4.792	4.808	4.807	4.814	4.314	4.842	4.749	4.741	4.720	4.676	4.631
3.1	5.034	4.619	4.824	4.748	4.836	4.873	4.899	4.919	4.903	4.870	4.805	4.745	4.720	4.672	4.623
3.2	4.711	4.891	4.905	4.913	4.853	4.853	4.907	4.927	4.915	4.874	4.811	4.741	4.720	4.608	4.607
3.3	4.770	4.953	4.969	4.994	4.996	4.933	4.838	4.886	4.907	4.840	4.698	4.722	4.686	4.627	4.621
3.4	4.806	5.006	5.022	5.022	5.014	5.006	4.724	4.700	4.664	4.615	4.429	4.449	4.445	4.518	4.639
3.5	4.816	4.756	5.026	5.024	5.016	5.014	4.722	4.684	4.660	4.619	4.696	4.710	4.733	4.724	4.631
3.6	4.792	4.927	4.976	5.026	5.026	5.014	4.716	4.684	4.757	4.773	4.777	4.781	4.781	4.769	4.767
3.7	4.933	5.006	4.973	4.953	4.973	4.744	4.814	4.672	4.816	4.830	4.807	4.805	4.809	4.803	4.799
3.8	5.034	5.058	5.034	4.998	4.925	4.881	4.899	4.814	4.834	4.846	4.858	4.842	4.832	4.826	4.818
3.9	5.074	5.090	5.066	5.014	4.919	4.917	4.939	4.874	4.854	4.870	4.880	4.874	4.864	4.870	4.868
4.0	5.092	5.092	5.062	4.965	4.885	4.967	4.943	4.894	4.781	4.818	4.866	4.882	4.903	4.909	4.890
4.1	5.082	5.078	4.990	4.903	4.929	4.949	4.911	4.870	4.741	4.793	4.830	4.797	4.781	4.534	4.518
4.2	4.792	4.990	4.917	4.576	4.889	4.877	4.846	4.805	4.769	4.838	4.856	4.830	4.747	4.536	4.611
4.3	4.820	4.808	4.768	4.762	4.558	4.649	4.676	4.765	4.809	4.850	4.814	4.828	4.722	4.882	4.919
4.4	4.796	4.728	4.822	4.828	4.631	4.711	4.652	4.595	4.830	4.858	4.769	4.753	4.652	4.890	4.919
4.5	4.653	4.609	4.772	4.760	4.703	4.804	4.619	4.666	4.724	4.789	4.793	4.777	4.834	4.890	4.927
4.6	4.550	4.534	4.683	4.675	4.877	4.863	4.807	4.733	4.751	4.814	4.834	4.803	4.700	4.899	4.919
4.7	5.082	4.663	4.707	4.711	4.889	4.919	4.870	4.724	4.773	4.789	4.826	4.805	4.731	4.785	4.903
4.8	5.111	4.788	4.786	4.772	4.764	4.901	4.858	4.660	4.761	4.807	4.801	4.801	4.733	4.781	4.797
4.9	5.131	4.832	4.812	4.824	4.796	4.742	4.619	4.984	5.040	5.026	4.935	4.771	4.793	4.828	4.850
5.0	5.153	4.840	4.867	4.869	4.820	4.736	4.917	5.014	5.067	5.056	5.000	4.882	4.809	4.870	4.894
5.1	5.143	4.865	4.889	4.881	4.820	4.707	4.909	4.992	5.073	5.065	5.012	4.943	4.850	4.785	4.907
5.2	5.064	4.865	4.885	4.899	4.236	4.707	4.882	4.990	5.065	5.069	5.016	4.953	4.874	4.814	4.743
5.3	4.879	4.877	4.897	4.865	4.409	4.447	4.846	4.975	5.048	5.069	5.024	4.971	4.899	4.842	4.757
5.4	4.760	4.803	4.905	4.851	4.822	4.709	4.830	4.953	5.028	5.062	5.036	4.984	4.919	4.858	5.077
5.5	5.062	5.098	5.151	5.131	5.096	4.978	4.921	4.894	4.998	5.040	5.032	4.980	4.907	4.826	5.150
5.6	5.123	5.175	5.163	5.175	5.123	5.046	4.959	4.826	4.931	4.996	4.984	4.874	4.753	4.660	5.154
5.7	5.213	5.228	5.199	5.133	5.066	5.004	4.911	4.757	4.852	4.899	4.785	4.680	4.599	4.724	4.868
5.8	5.223	5.242	5.159	5.111	5.002	4.937	4.858	4.625	4.720	4.722	4.627	4.680	4.645	4.737	4.704
5.9	5.183	5.175	5.115	5.014	4.941	4.857	4.828	4.652	4.544	4.502	4.635	4.761	4.700	4.735	4.712

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7
0.1	4.718	4.722	4.696	4.656	4.599	4.482	4.488	4.502	4.538	4.666	4.696	4.702	4.665	4.617	4.550
0.2	4.688	4.684	4.635	4.589	4.692	4.540	4.494	4.502	4.583	4.684	4.761	4.763	4.679	4.609	4.750
0.3	4.749	4.722	4.409	4.686	4.696	4.676	4.477	4.469	4.676	4.834	4.816	4.731	4.633	4.536	4.750
0.4	4.747	4.743	4.731	4.660	4.680	4.546	4.469	4.643	4.850	4.866	4.785	4.696	4.663	4.625	4.631
0.5	4.737	4.741	4.731	4.722	4.599	4.684	4.619	4.471	4.761	4.720	4.698	4.767	4.778	4.734	4.633
0.6	4.550	4.741	4.739	4.726	5.036	5.030	5.006	4.534	4.502	4.617	4.722	4.818	4.786	4.730	4.649
0.7	4.522	4.508	4.621	5.044	5.077	5.073	5.046	4.969	4.895	4.660	4.769	4.830	4.794	4.730	4.659
0.8	4.486	4.469	4.984	5.048	5.085	5.077	5.050	4.971	4.907	4.834	4.793	4.822	4.776	4.710	4.633
0.9	4.425	4.397	4.951	5.028	5.073	5.052	5.036	4.988	4.931	4.854	4.801	4.807	4.740	4.679	4.750
1.0	4.494	4.498	4.947	5.024	5.062	5.054	5.026	4.977	4.939	4.864	4.773	4.767	4.697	4.756	4.818
1.1	5.008	4.512	4.874	4.965	5.052	5.062	5.028	4.980	4.939	4.870	4.720	4.696	4.645	4.810	4.875
1.2	5.028	5.020	4.506	4.923	4.988	5.052	5.040	4.975	4.939	4.878	4.652	4.637	4.570	4.435	4.827
1.3	5.018	5.030	4.720	4.866	4.917	5.004	5.028	4.971	4.947	4.445	4.471	4.451	4.633	4.633	4.732
1.4	5.004	5.016	4.947	4.793	4.826	4.943	4.996	4.975	4.491	4.530	4.502	4.477	4.661	4.661	4.881
1.5	4.984	5.002	5.004	4.765	4.745	4.538	4.700	4.716	4.633	4.542	4.536	4.500	4.677	4.952	4.982
1.6	4.963	4.984	4.996	4.927	4.747	4.674	4.785	4.785	4.724	4.443	4.336	4.231	4.415	5.008	5.012
1.7	4.947	4.963	4.971	4.842	4.502	4.694	4.818	4.818	4.769	4.680	4.380	4.637	4.939	5.002	5.006
1.8	4.874	4.915	4.907	4.830	4.765	4.789	4.626	4.818	4.771	4.674	4.656	4.846	4.891	4.968	4.986
1.9	4.777	4.834	4.797	4.814	4.737	4.767	4.805	4.791	4.793	4.801	4.650	4.868	4.883	4.907	4.972
2.0	4.720	4.731	4.761	4.753	4.518	4.765	4.814	4.834	4.874	4.886	4.872	4.834	4.869	4.905	4.962
2.1	4.882	4.830	4.789	4.534	4.733	4.797	4.826	4.836	4.842	4.858	4.868	4.633	4.843	4.907	4.923
2.2	4.969	4.947	4.925	4.860	4.724	4.739	4.753	4.767	4.781	4.793	4.801	4.652	4.611	4.597	4.774
2.3	4.996	4.980	4.957	4.939	4.899	4.672	4.684	4.692	4.722	4.720	4.720	4.595	4.593	4.774	4.869
2.4	5.000	4.984	4.957	4.939	4.923	4.571	4.593	4.571	4.005	4.648	4.522	4.571	4.810	4.827	4.871
2.5	4.980	4.961	4.943	4.937	4.911	4.538	4.550	4.587	4.615	4.599	4.862	4.949	5.022	4.956	4.806
2.6	4.937	4.933	4.939	4.913	4.814	4.585	4.621	4.449	4.599	4.935	5.038	5.073	5.066	5.008	4.935
2.7	4.818	4.846	4.848	4.627	4.629	4.599	4.609	4.520	4.583	4.963	5.028	5.060	5.068	5.032	4.984
2.8	4.591	4.818	4.846	4.882	4.623	4.599	4.534	4.656	4.556	4.980	5.022	5.042	5.024	4.994	4.962
2.9	4.874	4.882	4.915	4.931	4.888	4.565	4.773	4.720	4.648	4.939	4.998	5.002	4.966	4.923	4.891
3.0	4.935	4.947	4.973	4.975	4.890	4.720	4.765	4.745	4.680	4.899	4.927	4.931	4.883	4.843	4.810
3.1	4.992	5.006	4.988	4.882	4.504	4.589	4.702	4.688	4.664	4.613	4.818	4.846	4.806	4.758	4.744
3.2	5.034	5.010	4.858	4.722	4.834	4.931	4.923	4.874	4.603	4.480	4.591	4.720	4.665	4.631	4.772
3.3	4.996	4.874	4.668	4.656	4.923	4.955	4.931	4.890	4.846	4.773	4.639	4.633	4.617	4.770	4.792
3.4	4.856	4.733	4.708	4.672	4.953	4.963	4.935	4.866	4.818	4.771	4.607	4.364	4.649	4.790	4.820
3.5	4.741	4.739	4.678	4.619	4.953	4.963	4.923	4.894	4.856	4.769	4.720	4.417	4.423	4.387	4.825
3.6	4.720	4.684	4.619	4.698	4.971	4.996	4.988	4.937	4.382	4.326	4.777	4.726	4.649	4.649	4.641
3.7	4.652	4.623	4.558	4.842	4.949	4.980	4.977	4.923	4.862	4.793	4.751	4.720	4.649	4.631	4.677
3.8	4.785	4.469	4.447	4.409	4.850	4.899	4.915	4.874	4.818	4.759	4.720	4.686	4.708	4.486	4.599
3.9	4.899	4.789	4.455	4.486	4.469	4.690	4.722	4.745	4.807	4.846	4.834	4.850	4.875	4.863	4.450
4.0	4.951	4.856	4.409	4.455	4.733	4.783	4.809	4.801	4.892	4.945	4.943	4.965	4.945	4.903	4.851
4.1	5.024	4.939	4.854	4.692	4.737	4.783	4.818	4.818	4.909	4.996	5.004	4.980	4.935	4.887	4.827
4.2	5.077	5.016	4.937	4.688	4.728	4.777	4.818	4.866	4.818	4.980	4.943	4.889	4.857	4.857	4.706
4.3	5.109	5.036	4.639	4.686	4.728	4.775	4.793	4.785	4.688	4.913	4.913	4.899	4.857	4.772	4.829
4.4	5.101	4.633	4.631	4.680	4.724	4.739	4.733	4.688	4.656	4.773	4.850	4.848	4.772	4.841	4.881
4.5	4.680	4.753	4.591	4.656	4.680	4.664	4.625	4.591	4.560	4.666	4.672	4.664	4.758	4.861	4.869
4.6	4.765	4.801	4.757	4.562	4.599	4.575	4.554	4.534	4.627	4.664	4.672	4.670	4.778	4.883	4.859
4.7	4.801	4.801	4.745	4.656	4.388	4.441	4.844	4.975	5.020	5.028	4.977	4.680	4.810	4.889	4.873
4.8	4.789	4.795	4.680	4.603	4.575	4.818	4.971	5.040	5.069	5.069	5.038	4.882	4.827	4.867	4.855
4.9	4.745	4.676	4.591	4.494	4.720	4.890	4.992	5.058	5.073	5.075	5.028	4.935	4.730	4.732	4.754
5.0	4.666	4.579	4.502	4.465	4.722	4.382	4.984	5.044	5.054	5.044	5.004	4.931	4.629	4.633	4.641
5.1	4.575	4.684	4.773	4.795	4.749	4.824	4.931	5.010	5.024	4.996	4.953	4.858	4.633	4.647	4.649
5.2	4.660	4.751	4.805	4.809	4.781	4.672	4.850	4.923	4.939	4.911	4.864	4.603	4.631	4.653	4.663
5.3	4.674	4.767	4.797	4.773	4.745	4.652	4.591	4.502	4.801	4.706	4.765	4.785	4.564	4.641	4.649
5.4	4.486	4.753	4.785	4.753	4.712	4.623	4.648	4.502	4.722	4.785	4.846	4.868	4.780	4.581	4.581
5.5	4.623	4.587	4.724	4.737	4.688	4.658	4.682	4.720	4.818	4.882	4.927	4.911	4.802	4.552	4.585
5.6	4.706	4.674	4.627	4.542	4.662	4.704	4.686	4.534	4.907	4.963	4.963	4.917	4.827	4.663	4.728
5.7	4.741	4.694	4.652	4.589	4.656	4.692	4.615	4.907	4.980	4.996	4.980	4.899	4.732	4.792	4.839
5.8	4.664	4.621	4.583	4.599	4.619	4.567	4.623	4.923	4.988	5.000	4.947	4.866	4.730	4.806	4.885
5.9	4.409	4.603	4.599	4.599	4.619	4.569	4.571	4.846	4.868	4.947	4.899	4.457	4.599	4.790	4.871

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 29.3	29.4	29.5	29.6	29.7	29.8	29.9	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7
0.1	4.552	4.625	4.653	4.657	4.560	4.558	4.572	4.578	4.556	4.544	4.542	4.532	4.514	4.730	4.804
0.2	4.794	4.641	4.639	4.706	4.609	4.637	4.927	4.960	4.869	4.552	4.558	4.556	4.732	4.804	4.869
0.3	4.859	4.679	4.697	4.718	4.625	4.915	4.962	4.960	4.960	4.540	4.528	4.556	4.810	4.883	4.893
0.4	5.109	4.673	4.697	4.677	4.883	4.913	4.943	4.980	4.984	4.956	4.589	4.818	4.885	4.895	4.881
0.5	4.889	4.681	4.689	4.576	4.845	4.883	4.907	4.964	4.976	4.951	4.895	4.885	4.895	4.879	4.871
0.6	4.601	4.665	4.675	4.556	4.818	4.865	4.901	4.931	4.947	4.915	4.837	4.873	4.873	4.867	4.861
0.7	4.609	4.613	4.627	4.506	4.774	4.859	4.881	4.901	4.905	4.875	4.770	4.851	4.851	4.859	4.847
0.8	4.768	4.778	4.746	4.691	4.625	4.802	4.855	4.881	4.867	4.814	4.524	4.814	4.851	4.861	4.835
0.9	4.718	4.762	4.762	4.730	4.679	4.625	4.818	4.857	4.802	4.542	4.508	4.399	4.802	4.818	4.786
1.0	4.746	4.677	4.818	4.851	4.831	4.786	4.766	4.802	4.542	4.560	4.542	4.542	4.578	4.576	4.556
1.1	4.770	4.722	4.899	4.923	4.923	4.877	4.828	4.740	4.687	4.560	4.546	4.657	4.685	4.673	4.633
1.2	4.770	4.782	4.899	4.923	4.931	4.931	4.931	4.905	4.831	4.750	4.681	4.750	4.754	4.746	4.726
1.3	4.576	4.748	4.861	4.869	4.883	4.899	4.917	4.931	4.915	4.879	4.770	4.786	4.794	4.786	4.770
1.4	4.851	4.826	4.778	4.818	4.831	4.851	4.867	4.891	4.893	4.861	4.762	4.802	4.814	4.810	4.802
1.5	4.915	4.897	4.810	4.657	4.770	4.794	4.808	4.831	4.851	4.812	4.730	4.806	4.820	4.818	4.816
1.6	4.939	4.911	4.818	4.617	4.488	4.728	4.754	4.770	4.740	4.726	4.512	4.770	4.826	4.831	4.828
1.7	4.935	4.883	4.661	4.484	4.431	4.528	4.617	4.661	4.589	4.445	4.431	4.625	4.802	4.828	4.818
1.8	4.889	4.710	4.544	4.560	4.536	4.593	4.637	4.667	4.657	4.429	4.431	4.611	4.653	4.768	4.770
1.9	4.740	4.576	4.617	4.605	4.593	4.576	4.617	4.643	4.641	4.443	4.441	4.447	4.623	4.633	4.556
2.0	4.540	4.621	4.641	4.633	4.619	4.611	4.601	4.625	4.415	4.449	4.445	4.453	4.472	4.453	4.550
2.1	4.550	4.639	4.663	4.673	4.651	4.641	4.623	4.478	4.439	4.460	4.542	4.462	4.429	4.460	4.522
2.2	4.532	4.653	4.681	4.697	4.681	4.609	4.655	4.512	4.427	4.576	4.607	4.601	4.337	4.544	4.538
2.3	4.492	4.621	4.681	4.699	4.697	4.681	4.669	4.494	4.589	4.613	4.633	4.623	4.562	4.558	4.540
2.4	4.357	4.401	4.359	4.393	4.722	4.736	4.722	4.671	4.597	4.635	4.641	4.383	4.359	4.558	4.542
2.5	4.302	4.343	4.415	4.641	4.708	4.766	4.744	4.699	4.673	4.447	4.421	4.345	4.369	4.409	4.524
2.6	4.621	4.595	4.560	4.722	4.790	4.786	4.770	4.722	4.689	4.576	4.393	4.345	4.365	4.701	4.726
2.7	4.689	4.649	4.609	4.754	4.794	4.786	4.782	4.718	4.683	4.407	4.302	4.345	4.689	4.758	4.794
2.8	4.742	4.722	4.671	4.738	4.786	4.770	4.754	4.706	4.566	4.429	4.363	4.345	4.687	4.770	4.802
2.9	4.762	4.722	4.697	4.637	4.740	4.740	4.722	4.619	4.383	4.395	4.480	4.496	4.671	4.754	4.784
3.0	4.774	4.742	4.706	4.649	4.603	4.435	4.625	4.706	4.649	4.431	4.476	4.506	4.576	4.663	4.625
3.1	4.794	4.762	4.730	4.665	4.609	4.524	4.653	4.728	4.671	4.558	4.464	4.504	4.488	4.373	4.526
3.2	4.818	4.784	4.742	4.665	4.597	4.429	4.625	4.706	4.728	4.576	4.443	4.443	4.347	4.361	4.675
3.3	4.812	4.685	4.611	4.431	4.407	4.406	4.576	4.667	4.728	4.671	4.508	4.593	4.671	4.706	4.750
3.4	4.514	4.520	4.504	4.468	4.472	4.361	4.504	4.631	4.677	4.722	4.508	4.625	4.689	4.730	4.742
3.5	4.593	4.556	4.544	4.568	4.554	4.367	4.482	4.530	4.576	4.625	4.536	4.623	4.685	4.706	4.738
3.6	4.633	4.621	4.601	4.585	4.576	4.387	4.363	4.677	4.732	4.754	4.728	4.605	4.679	4.701	4.734
3.7	4.663	4.649	4.633	4.593	4.576	4.655	4.683	4.718	4.766	4.786	4.786	4.754	4.653	4.687	4.706
3.8	4.687	4.665	4.657	4.633	4.627	4.673	4.701	4.748	4.770	4.792	4.796	4.782	4.528	4.524	4.443
3.9	4.697	4.697	4.677	4.657	4.641	4.681	4.706	4.752	4.762	4.762	4.754	4.750	4.528	4.381	4.413
4.0	4.722	4.722	4.701	4.673	4.615	4.657	4.673	4.726	4.730	4.726	4.734	4.732	4.601	4.730	4.681
4.1	4.646	4.706	4.699	4.669	4.593	4.623	4.649	4.726	4.730	4.732	4.742	4.730	4.637	4.814	4.881
4.2	4.746	4.472	4.556	4.544	4.560	4.625	4.653	4.669	4.695	4.728	4.728	4.631	4.689	4.859	5.022
4.3	4.786	4.701	4.583	4.597	4.522	4.576	4.601	4.553	4.639	4.624	4.651	4.617	4.800	4.925	5.042
4.4	4.784	4.681	4.585	4.609	4.770	4.734	4.730	4.718	4.599	4.617	4.603	4.722	4.909	4.960	5.024
4.5	4.657	4.536	4.544	4.689	4.851	4.756	4.742	4.786	4.708	4.476	4.570	4.726	4.913	4.982	4.992
4.6	4.659	4.609	4.488	4.786	4.786	4.843	4.807	4.831	4.814	4.730	4.673	4.657	4.907	4.947	4.945
4.7	4.722	4.591	4.460	4.748	4.740	4.798	4.871	4.835	4.796	4.728	4.732	4.750	4.730	4.826	4.875
4.8	4.782	4.494	4.514	4.480	4.722	4.770	4.831	4.818	4.770	4.722	4.669	4.706	4.740	4.730	4.528
4.9	4.810	4.564	4.496	4.484	4.508	4.653	4.639	4.653	4.617	4.496	4.794	4.851	4.867	4.867	4.760
5.0	4.843	4.818	4.411	4.379	4.359	4.722	4.331	4.772	4.951	4.976	4.988	4.982	4.978	4.956	4.788
5.1	4.869	4.828	4.480	4.383	4.770	4.824	4.345	4.770	5.010	5.050	5.074	5.063	5.044	4.964	4.754
5.2	4.889	4.831	4.520	4.443	4.802	4.814	4.835	4.748	5.028	5.068	5.093	5.093	5.042	4.897	4.635
5.3	4.907	4.818	4.552	4.554	4.615	4.794	4.800	4.752	4.976	4.998	5.044	5.072	5.010	4.820	4.494
5.4	4.921	4.794	4.814	4.802	4.770	4.478	4.462	4.429	4.742	4.875	4.929	4.988	4.915	4.732	4.812
5.5	4.933	4.859	4.875	4.851	4.810	4.722	4.542	4.464	4.411	4.492	4.768	4.831	4.778	4.621	4.804
5.6	4.639	4.869	4.883	4.875	4.835	4.754	4.508	4.494	4.439	4.591	4.609	4.607	4.460	4.603	4.734
5.7	4.722	4.859	4.879	4.875	4.847	4.782	4.589	4.516	4.647	4.701	4.728	4.742	4.740	4.728	4.730
5.8	4.722	4.843	4.867	4.861	4.820	4.740	4.593	4.524	4.683	4.730	4.756	4.784	4.800	4.812	4.802
5.9	4.653	4.786	4.824	4.814	4.752	4.593	4.574	4.574	4.542	4.673	4.736	4.774	4.812	4.818	4.810

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 35.3	35.4	35.5	35.6	35.7	35.8	35.9	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7
0.1	4.597	4.617	4.665	4.714	4.663	4.639	4.708	4.720	4.716	4.730	4.734	4.738	4.728	4.492	4.627
0.2	4.587	4.625	4.665	4.695	4.587	4.679	4.714	4.730	4.740	4.752	4.756	4.756	4.754	4.609	4.627
0.3	4.762	4.786	4.685	4.512	4.423	4.691	4.722	4.750	4.758	4.762	4.770	4.708	4.758	4.647	4.633
0.4	4.857	4.899	4.851	4.732	4.421	4.665	4.732	4.756	4.760	4.774	4.774	4.744	4.631	4.923	4.935
0.5	4.903	4.952	4.964	4.899	4.744	4.498	4.623	4.603	4.730	4.734	4.681	4.732	4.710	4.972	4.972
0.6	4.931	4.986	5.018	5.018	4.952	4.546	4.583	4.579	4.536	4.679	4.742	4.738	4.726	4.990	5.008
0.7	4.952	4.992	5.032	5.048	5.012	4.885	4.577	4.570	4.550	4.633	4.677	4.708	4.859	4.921	4.950
0.8	4.956	5.000	5.034	5.048	5.000	4.810	4.619	4.801	4.913	4.891	4.857	4.649	4.790	4.839	4.895
0.9	4.956	4.996	5.012	5.008	4.839	4.958	5.028	5.008	4.968	4.935	4.899	4.825	4.693	4.790	4.827
1.0	4.891	4.907	4.820	4.679	4.907	5.050	5.068	5.036	5.000	4.943	4.899	4.839	4.617	4.710	4.740
1.1	4.301	4.322	4.343	4.552	4.585	5.083	5.081	5.032	4.980	4.925	4.877	4.806	4.550	4.631	4.669
1.2	4.744	4.740	4.728	4.704	4.435	5.079	5.052	5.004	4.956	4.887	4.839	4.728	4.450	4.518	4.536
1.3	4.825	4.806	4.792	4.762	4.683	5.004	5.018	4.964	4.921	4.843	4.742	4.441	4.495	4.514	4.502
1.4	4.857	4.827	4.794	4.750	4.631	4.456	4.899	4.871	4.572	4.820	4.843	4.798	4.762	4.804	4.804
1.5	4.835	4.794	4.758	4.681	4.514	4.443	4.704	4.700	4.621	4.907	4.907	4.901	4.881	4.857	4.851
1.6	4.768	4.738	4.691	4.585	4.320	4.605	4.710	4.710	4.681	4.933	4.923	4.889	4.871	4.871	4.857
1.7	4.677	4.649	4.597	4.437	4.476	4.617	4.681	4.693	4.601	4.941	4.933	4.907	4.893	4.877	4.871
1.8	4.512	4.355	4.423	4.486	4.629	4.631	4.625	4.643	4.621	4.947	4.937	4.921	4.903	4.887	4.879
1.9	4.500	4.417	4.568	4.641	4.706	4.762	4.695	4.405	4.863	4.950	4.939	4.927	4.909	4.897	4.883
2.0	4.734	4.454	4.613	4.603	4.714	4.798	4.798	4.546	4.921	4.950	4.947	4.937	4.919	4.905	4.889
2.1	4.762	4.693	4.617	4.667	4.732	4.822	4.855	4.645	4.919	4.954	4.954	4.939	4.923	4.907	4.895
2.2	4.754	4.730	4.641	4.681	4.758	4.843	4.893	4.762	4.907	4.935	4.939	4.921	4.903	4.887	4.857
2.3	4.748	4.730	4.665	4.697	4.770	4.855	4.903	4.845	4.625	4.843	4.516	4.581	4.591	4.585	4.585
2.4	4.738	4.697	4.661	4.661	4.762	4.776	4.633	4.631	4.498	4.452	4.516	4.552	4.595	4.587	4.585
2.5	4.714	4.661	4.532	4.532	4.492	4.740	4.889	4.806	4.647	4.665	4.746	4.792	4.835	4.585	4.581
2.6	4.645	4.564	4.579	4.544	4.952	5.004	4.976	4.883	4.693	4.762	4.810	4.839	4.843	4.550	4.532
2.7	4.484	4.568	4.585	4.554	5.000	5.030	5.016	4.889	4.756	4.649	4.726	4.734	4.617	4.488	4.472
2.8	4.601	4.677	4.730	4.877	4.974	5.032	5.016	4.885	4.732	4.456	4.609	4.536	4.516	4.516	4.502
2.9	4.744	4.774	4.810	4.752	4.966	5.012	4.966	4.758	4.540	4.585	4.597	4.544	4.508	4.512	4.490
3.0	4.798	4.841	4.839	4.486	4.891	4.907	4.758	4.552	4.587	4.619	4.609	4.599	4.470	4.476	4.450
3.1	4.778	4.814	4.794	4.441	4.500	4.468	4.476	4.558	4.581	4.613	4.611	4.601	4.556	4.452	4.437
3.2	4.730	4.750	4.456	4.494	4.534	4.518	4.447	4.548	4.564	4.585	4.601	4.605	4.568	4.490	4.597
3.3	4.423	4.387	4.369	4.452	4.512	4.522	4.306	4.516	4.552	4.562	4.565	4.601	4.556	4.621	4.651
3.4	4.516	4.520	4.500	4.494	4.456	4.502	4.452	4.496	4.536	4.536	4.568	4.585	4.512	4.607	4.633
3.5	4.558	4.585	4.550	4.530	4.520	4.514	4.542	4.343	4.508	4.532	4.548	4.564	4.502	4.575	4.595
3.6	4.661	4.633	4.593	4.581	4.583	4.585	4.322	4.339	4.339	4.474	4.484	4.325	4.419	4.504	4.355
3.7	4.649	4.679	4.645	4.645	4.637	4.645	4.587	4.550	4.490	4.452	4.405	4.351	4.456	4.454	4.419
3.8	4.639	4.661	4.661	4.708	4.695	4.655	4.841	4.841	4.822	4.762	4.572	4.597	4.601	4.566	4.383
3.9	4.575	4.625	4.661	4.697	4.883	4.903	4.907	4.889	4.871	4.827	4.772	4.548	4.550	4.544	4.599
4.0	4.502	4.452	4.421	4.859	4.919	4.939	4.939	4.923	4.905	4.879	4.829	4.502	4.494	4.494	4.645
4.1	4.641	4.347	4.234	4.879	4.931	4.966	4.970	4.960	4.943	4.907	4.857	4.778	4.450	4.504	4.500
4.2	4.536	4.373	4.357	4.923	4.908	5.000	5.004	4.984	4.968	4.931	4.883	4.786	4.552	4.617	4.599
4.3	4.585	4.419	4.415	4.972	5.006	5.028	5.018	5.004	4.986	4.952	4.891	4.792	4.621	4.673	4.651
4.4	4.601	4.613	4.617	4.994	5.030	5.032	5.018	5.000	4.980	4.939	4.877	4.752	4.659	4.730	4.693
4.5	4.784	4.794	4.609	4.984	5.020	5.010	4.972	4.954	4.933	4.891	4.827	4.621	4.734	4.758	4.714
4.6	4.925	4.889	4.744	4.581	4.956	4.919	4.877	4.843	4.822	4.790	4.566	4.669	4.778	4.810	4.738
4.7	4.956	4.919	4.804	4.538	4.732	4.810	4.641	4.597	4.373	4.427	4.601	4.693	4.820	4.827	4.762
4.8	4.958	4.929	4.833	4.774	4.774	4.734	4.679	4.631	4.579	4.407	4.589	4.708	4.810	4.822	4.778
4.9	4.935	4.917	4.839	4.790	4.802	4.774	4.718	4.581	4.419	4.484	4.452	4.710	4.804	4.806	4.750
5.0	4.907	4.887	4.804	4.740	4.810	4.810	4.629	4.409	4.454	4.470	4.407	4.454	4.758	4.710	4.649
5.1	4.871	4.837	4.405	4.681	4.746	4.770	4.387	4.339	4.506	4.518	4.522	4.528	4.552	4.504	4.708
5.2	4.419	4.419	4.322	4.375	4.675	4.740	4.748	4.748	4.746	4.536	4.544	4.536	4.536	4.536	4.825
5.3	4.423	4.419	4.238	4.706	4.762	4.762	4.770	4.770	4.778	4.766	4.552	4.550	4.546	4.542	4.857
5.4	4.423	4.516	4.516	4.774	4.782	4.778	4.790	4.792	4.794	4.798	4.554	4.560	4.552	4.758	4.887
5.5	4.435	4.518	4.577	4.794	4.810	4.802	4.810	4.818	4.822	4.822	4.774	4.566	4.554	4.468	4.839
5.6	4.387	4.500	4.550	4.810	4.818	4.831	4.839	4.839	4.835	4.622	4.774	4.566	4.532	4.581	4.629
5.7	4.355	4.401	4.566	4.810	4.839	4.843	4.843	4.849	4.810	4.804	4.548	4.532	4.452	4.550	4.609
5.8	4.577	4.637	4.681	4.679	4.841	4.853	4.839	4.822	4.778	4.631	4.581	4.387	4.423	4.502	4.552
5.9	4.661	4.730	4.758	4.720	4.522	4.822	4.839	4.762	4.621	4.627	4.566	4.439	4.431	4.403	4.476

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 41.3	41.4	41.5	41.6	41.7	41.8	41.9	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7
0.1	4.790	4.734	4.623	4.464	4.353	4.377	4.566	4.657	4.588	4.440	4.373	4.173	4.359	4.161	4.434
0.2	4.831	4.349	4.806	4.673	4.353	4.570	4.723	4.721	4.586	4.487	4.296	4.394	4.392	4.422	4.424
0.3	4.851	4.857	4.826	4.754	4.637	4.798	4.841	4.719	4.508	4.467	4.436	4.458	4.626	4.732	4.889
0.4	4.871	4.867	4.828	4.748	4.762	4.891	4.889	4.966	4.562	4.477	4.428	4.663	4.845	4.932	4.936
0.5	4.881	4.859	4.754	4.758	4.875	4.937	4.902	4.802	4.570	4.408	4.630	4.784	4.940	4.950	4.930
0.6	4.879	4.782	4.728	4.849	4.958	4.951	4.889	4.768	4.501	4.438	4.499	4.732	4.885	4.940	4.906
0.7	4.831	4.726	4.786	4.931	4.958	4.933	4.667	4.715	4.311	4.438	4.505	4.782	4.932	4.926	4.904
0.8	4.746	4.635	4.742	4.899	4.927	4.895	4.780	4.440	4.365	4.387	4.339	4.851	4.906	4.906	4.887
0.9	4.536	4.484	4.415	4.351	4.831	4.802	4.614	4.270	4.373	4.400	4.371	4.420	4.841	4.855	4.857
1.0	4.542	4.512	4.462	4.393	4.302	4.300	4.335	4.414	4.505	4.517	4.564	4.608	4.606	4.792	4.813
1.1	4.544	4.504	4.447	4.407	4.292	4.296	4.450	4.537	4.598	4.634	4.691	4.726	4.756	4.748	4.719
1.2	4.536	4.488	4.474	4.407	4.296	4.282	4.489	4.553	4.610	4.667	4.723	4.764	4.792	4.792	4.723
1.3	4.532	4.784	4.732	4.603	4.306	4.290	4.470	4.557	4.612	4.673	4.728	4.770	4.796	4.776	4.634
1.4	4.526	4.802	4.828	4.814	4.754	4.623	4.562	4.541	4.582	4.675	4.728	4.762	4.764	4.570	4.614
1.5	4.601	4.764	4.786	4.770	4.750	4.730	4.659	4.553	4.505	4.566	4.693	4.685	4.505	4.582	4.570
1.6	4.673	4.623	4.736	4.730	4.701	4.667	4.626	4.549	4.371	4.422	4.311	4.481	4.699	4.726	4.695
1.7	4.728	4.710	4.653	4.661	4.633	4.605	4.508	4.487	4.306	4.440	4.408	4.634	4.813	4.829	4.813
1.8	4.750	4.742	4.722	4.605	4.574	4.542	4.503	4.553	4.647	4.659	4.349	4.582	4.831	4.898	4.922
1.9	4.762	4.766	4.730	4.524	4.500	4.472	4.422	4.618	4.634	4.647	4.616	4.432	4.806	4.916	4.924
2.0	4.770	4.766	4.613	4.429	4.433	4.411	4.424	4.582	4.588	4.602	4.566	4.357	4.582	4.889	4.918
2.1	4.754	4.730	4.369	4.250	4.280	4.250	4.477	4.519	4.539	4.541	4.258	4.306	4.420	4.788	4.875
2.2	4.730	4.367	4.375	4.423	4.266	4.240	4.452	4.468	4.416	4.365	4.226	4.402	4.505	4.466	4.608
2.3	4.427	4.439	4.445	4.476	4.441	4.359	4.505	4.509	4.485	4.464	4.406	4.485	4.539	4.535	4.521
2.4	4.443	4.480	4.508	4.512	4.480	4.316	4.521	4.566	4.562	4.505	4.454	4.594	4.505	4.519	4.535
2.5	4.462	4.494	4.524	4.524	4.488	4.347	4.517	4.553	4.533	4.721	4.760	4.748	4.699	4.610	4.472
2.6	4.476	4.510	4.542	4.536	4.484	4.343	4.499	4.519	4.689	4.772	4.809	4.625	4.792	4.661	4.562
2.7	4.488	4.512	4.538	4.522	4.564	4.639	4.638	4.630	4.736	4.792	4.825	4.859	4.861	4.744	4.596
2.8	4.464	4.506	4.466	4.439	4.605	4.653	4.665	4.667	4.723	4.766	4.811	4.853	4.871	4.871	4.837
2.9	4.318	4.302	4.367	4.494	4.576	4.619	4.649	4.649	4.691	4.744	4.792	4.831	4.859	4.867	4.861
3.0	4.347	4.331	4.558	4.619	4.593	4.593	4.608	4.570	4.651	4.699	4.760	4.813	4.847	4.861	4.845
3.1	4.357	4.560	4.623	4.625	4.605	4.528	4.499	4.470	4.628	4.681	4.740	4.792	4.829	4.855	4.843
3.2	4.730	4.540	4.572	4.564	4.512	4.443	4.377	4.343	4.535	4.663	4.723	4.762	4.794	4.813	4.796
3.3	4.786	4.770	4.484	4.472	4.734	4.814	4.768	4.505	4.501	4.584	4.665	4.699	4.736	4.602	4.616
3.4	4.766	4.770	4.730	4.538	4.831	4.895	4.892	4.859	4.740	4.487	4.499	4.602	4.570	4.422	4.523
3.5	4.734	4.738	4.742	4.673	4.798	4.893	4.908	4.908	4.875	4.704	4.454	4.505	4.608	4.440	4.517
3.6	4.701	4.732	4.706	4.679	4.701	4.784	4.841	4.875	4.865	4.809	4.444	4.521	4.501	4.616	4.452
3.7	4.641	4.546	4.397	4.357	4.623	4.687	4.726	4.772	4.798	4.764	4.420	4.456	4.647	4.649	4.626
3.8	4.609	4.554	4.435	4.435	4.314	4.619	4.643	4.723	4.728	4.721	4.286	4.616	4.653	4.634	4.616
3.9	4.605	4.562	4.528	4.478	4.345	4.494	4.592	4.616	4.618	4.347	4.339	4.616	4.647	4.630	4.608
4.0	4.607	4.558	4.538	4.443	4.355	4.558	4.564	4.560	4.545	4.529	4.452	4.564	4.647	4.632	4.608
4.1	4.593	4.689	4.806	4.810	4.738	4.603	4.566	4.570	4.566	4.553	4.505	4.517	4.628	4.630	4.600
4.2	4.879	4.857	4.835	4.826	4.782	4.621	4.616	4.610	4.592	4.560	4.501	4.402	4.602	4.614	4.600
4.3	4.881	4.853	4.816	4.798	4.750	4.615	4.630	4.630	4.590	4.497	4.596	4.549	4.497	4.553	4.553
4.4	4.849	4.814	4.762	4.754	4.671	4.540	4.560	4.598	4.742	4.730	4.665	4.612	4.545	4.468	4.394
4.5	4.833	4.784	4.742	4.687	4.593	4.544	4.434	4.859	4.841	4.778	4.699	4.649	4.582	4.521	4.616
4.6	4.814	4.782	4.732	4.462	4.574	4.569	4.780	4.922	4.869	4.825	4.756	4.681	4.628	4.628	4.693
4.7	4.790	4.748	4.415	4.443	4.443	4.476	4.700	4.900	4.894	4.857	4.794	4.711	4.647	4.776	4.736
4.8	4.613	4.593	4.572	4.427	4.486	4.508	4.501	4.776	4.896	4.857	4.806	4.728	4.875	4.865	4.780
4.9	4.641	4.623	4.593	4.556	4.445	4.526	4.519	4.726	4.843	4.873	4.796	4.950	4.942	4.894	4.859
5.0	4.631	4.635	4.609	4.542	4.318	4.558	4.545	4.523	4.746	4.794	4.958	4.995	4.983	4.938	4.867
5.1	4.599	4.603	4.552	4.447	4.282	4.560	4.566	4.553	4.371	4.940	5.001	5.003	5.019	4.987	4.918
5.2	4.669	4.661	4.693	4.254	4.264	4.534	4.537	4.531	4.345	4.875	5.003	5.037	5.035	4.997	4.732
5.3	4.770	4.812	4.800	4.754	4.439	4.429	4.436	4.402	4.258	4.744	4.938	5.011	5.005	4.748	4.367
5.4	4.861	4.869	4.857	4.818	4.496	4.480	4.519	4.517	4.276	4.466	4.778	4.869	4.713	4.699	4.353
5.5	4.911	4.895	4.863	4.824	4.512	4.589	4.586	4.529	4.345	4.521	4.557	4.582	4.590	4.570	4.355
5.6	4.935	4.887	4.835	4.786	4.558	4.005	4.596	4.562	4.464	4.537	4.566	4.602	4.618	4.630	4.582
5.7	4.915	4.867	4.806	4.542	4.589	4.597	4.570	4.549	4.450	4.551	4.566	4.598	4.630	4.634	4.634
5.8	4.891	4.835	4.458	4.542	4.589	4.583	4.564	4.493	4.470	4.543	4.566	4.626	4.649	4.649	4.647
5.9	4.851	4.552	4.357	4.494	4.560	4.576	4.483	4.355	4.422	4.519	4.562	4.594	4.620	4.634	4.634

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 47.3	47.4	47.5	47.6	47.7	47.8	47.9	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7
0.1	4.709	4.753	4.773	4.789	4.360	4.356	4.489	4.515	4.580	4.592	4.596	4.580	4.547	4.253	4.207
0.2	4.713	4.765	4.773	4.811	4.757	4.370	4.477	4.513	4.563	4.596	4.602	4.580	4.563	4.555	4.515
0.3	4.725	4.765	4.773	4.765	4.707	4.192	4.420	4.497	4.547	4.580	4.602	4.604	4.578	4.549	4.531
0.4	4.678	4.636	4.584	4.511	4.507	4.527	4.354	4.448	4.515	4.501	4.606	4.618	4.586	4.559	4.517
0.5	4.551	4.475	4.348	4.543	4.608	4.644	4.628	4.362	4.493	4.535	4.596	4.614	4.563	4.499	4.428
0.6	4.483	4.338	4.509	4.580	4.648	4.682	4.672	4.297	4.376	4.499	4.580	4.598	4.553	4.483	4.596
0.7	4.553	4.370	4.531	4.616	4.688	4.725	4.676	4.515	4.388	4.386	4.467	4.549	4.511	4.442	4.555
0.8	4.612	4.503	4.563	4.646	4.725	4.741	4.676	4.251	4.479	4.491	4.407	4.416	4.299	4.172	4.407
0.9	4.672	4.630	4.596	4.692	4.765	4.763	4.670	4.241	4.567	4.575	4.531	4.491	4.176	4.257	4.362
1.0	4.733	4.672	4.616	4.741	4.791	4.777	4.670	4.507	4.565	4.580	4.531	4.483	4.225	4.491	4.515
1.1	4.741	4.668	4.660	4.787	4.817	4.777	4.672	4.555	4.531	4.561	4.580	4.630	4.467	4.519	4.571
1.2	4.670	4.582	4.725	4.807	4.832	4.785	4.660	4.612	4.644	4.636	4.606	4.698	4.644	4.539	4.547
1.3	4.507	4.616	4.749	4.811	4.834	4.787	4.664	4.700	4.703	4.721	4.745	4.725	4.644	4.580	4.471
1.4	4.676	4.628	4.731	4.799	4.821	4.797	4.707	4.733	4.747	4.763	4.777	4.739	4.644	4.563	4.491
1.5	4.739	4.709	4.612	4.741	4.773	4.725	4.709	4.755	4.773	4.789	4.803	4.709	4.616	4.515	4.656
1.6	4.783	4.765	4.612	4.485	4.257	4.317	4.350	4.743	4.773	4.789	4.789	4.672	4.569	4.483	4.608
1.7	4.821	4.797	4.692	4.323	4.370	4.388	4.362	4.225	4.196	4.547	4.636	4.640	4.499	4.479	4.362
1.8	4.834	4.807	4.662	4.235	4.386	4.356	4.249	4.253	4.229	4.209	4.269	4.523	4.547	4.547	4.525
1.9	4.830	4.805	4.420	4.390	4.368	4.319	4.249	4.273	4.253	4.231	4.233	4.547	4.563	4.580	4.575
2.0	4.809	4.771	4.420	4.426	4.382	4.334	4.257	4.289	4.257	4.249	4.386	4.563	4.580	4.590	4.596
2.1	4.765	4.688	4.499	4.515	4.402	4.289	4.281	4.301	4.273	4.257	4.531	4.563	4.580	4.596	4.596
2.2	4.656	4.757	4.725	4.636	4.563	4.273	4.483	4.644	4.531	4.291	4.539	4.563	4.578	4.600	4.592
2.3	4.755	4.805	4.781	4.747	4.694	4.354	4.644	4.773	4.672	4.563	4.519	4.539	4.575	4.580	4.580
2.4	4.775	4.803	4.789	4.733	4.707	4.652	4.805	4.850	4.789	4.672	4.571	4.531	4.563	4.563	4.555
2.5	4.765	4.797	4.789	4.743	4.694	4.668	4.803	4.870	4.866	4.771	4.640	4.402	4.499	4.499	4.297
2.6	4.741	4.771	4.773	4.725	4.676	4.644	4.705	4.830	4.842	4.795	4.690	4.388	4.366	4.338	4.557
2.7	4.692	4.753	4.761	4.719	4.660	4.620	4.555	4.725	4.813	4.817	4.757	4.378	4.350	4.311	4.618
2.8	4.636	4.709	4.733	4.678	4.636	4.588	4.539	4.622	4.725	4.789	4.785	4.305	4.315	4.305	4.624
2.9	4.440	4.636	4.672	4.660	4.596	4.563	4.457	4.293	4.028	4.721	4.751	4.434	4.410	4.321	4.580
3.0	4.644	4.628	4.580	4.511	4.386	4.241	4.285	4.241	4.313	4.580	4.475	4.467	4.459	4.450	4.382
3.1	4.692	4.676	4.636	4.545	4.428	4.096	4.176	4.229	4.287	4.338	4.483	4.483	4.467	4.450	4.563
3.2	4.721	4.692	4.618	4.563	4.450	4.475	4.695	4.491	4.273	4.241	4.491	4.489	4.485	4.551	4.620
3.3	4.709	4.678	4.636	4.563	4.410	4.515	4.515	4.515	4.434	4.346	4.499	4.499	4.493	4.551	4.644
3.4	4.700	4.638	4.580	4.386	4.513	4.515	4.908	4.950	4.938	4.902	4.836	4.519	4.412	4.378	4.596
3.5	4.636	4.541	4.336	4.407	4.529	4.745	4.872	4.971	4.963	4.936	4.882	4.644	4.410	4.442	4.450
3.6	4.610	4.614	4.231	4.483	4.515	4.692	4.832	4.959	4.944	4.928	4.882	4.628	4.442	4.455	4.463
3.7	4.664	4.692	4.709	4.676	4.495	4.499	4.749	4.930	4.930	4.902	4.864	4.366	4.430	4.467	4.471
3.8	4.646	4.676	4.723	4.725	4.648	4.418	4.678	4.902	4.896	4.880	4.838	4.382	4.354	4.450	4.475
3.9	4.628	4.664	4.692	4.733	4.709	4.450	4.646	4.870	4.866	4.854	4.791	4.575	4.405	4.477	4.499
4.0	4.592	4.650	4.688	4.725	4.725	4.446	4.672	4.817	4.836	4.805	4.725	4.450	4.507	4.553	4.547
4.1	4.529	4.644	4.684	4.725	4.721	4.515	4.678	4.733	4.747	4.668	4.420	4.356	4.531	4.608	4.606
4.2	4.539	4.606	4.648	4.692	4.668	4.499	4.499	4.509	4.602	4.559	4.499	4.436	4.531	4.624	4.630
4.3	4.515	4.438	4.612	4.628	4.446	4.479	4.407	4.618	4.628	4.606	4.563	4.499	4.531	4.624	4.644
4.4	4.394	4.356	4.346	4.597	4.352	4.751	4.757	4.763	4.725	4.547	4.511	4.471	4.455	4.596	4.644
4.5	4.604	4.402	4.640	4.725	4.771	4.803	4.789	4.789	4.773	4.743	4.402	4.338	4.321	4.584	4.644
4.6	4.668	4.644	4.700	4.799	4.801	4.805	4.805	4.805	4.789	4.765	4.455	4.432	4.321	4.563	4.620
4.7	4.688	4.700	4.737	4.809	4.813	4.815	4.817	4.805	4.789	4.773	4.668	4.531	4.511	4.378	4.531
4.8	4.662	4.721	4.749	4.821	4.811	4.805	4.805	4.799	4.785	4.759	4.580	4.580	4.580	4.495	4.430
4.9	4.636	4.743	4.773	4.797	4.789	4.757	4.682	4.672	4.686	4.640	4.666	4.644	4.674	4.686	4.495
5.0	4.402	4.707	4.723	4.733	4.668	4.551	4.370	4.300	4.668	4.725	4.725	4.749	4.797	4.797	4.725
5.1	4.378	4.380	4.660	4.725	4.755	4.713	4.400	4.515	4.725	4.799	4.838	4.862	4.882	4.854	4.805
5.2	4.338	4.608	4.672	4.692	4.725	4.727	4.596	4.414	4.769	4.848	4.894	4.914	4.926	4.888	4.836
5.3	4.338	4.555	4.614	4.644	4.644	4.652	4.450	4.416	4.773	4.870	4.908	4.926	4.928	4.892	4.830
5.4	4.450	4.475	4.503	4.596	4.575	4.412	4.453	4.410	4.731	4.850	4.902	4.928	4.902	4.878	4.823
5.5	4.604	4.668	4.709	4.737	4.418	4.302	4.499	4.491	4.515	4.799	4.870	4.890	4.884	4.842	4.773
5.6	4.620	4.678	4.725	4.757	4.757	4.549	4.551	4.491	4.580	4.644	4.612	4.781	4.779	4.725	4.580
5.7	4.580	4.646	4.688	4.743	4.769	4.739	4.517	4.475	4.618	4.660	4.709	4.680	4.648	4.596	4.604
5.8	4.523	4.596	4.628	4.707	4.765	4.725	4.515	4.422	4.668	4.737	4.729	4.709	4.676	4.628	4.604
5.9	4.507	4.511	4.573	4.616	4.668	4.499	4.450	4.414	4.721	4.725	4.700	4.672	4.644	4.608	4.539

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 53.3	53.4	53.5	53.6	53.7	53.8	53.9	54.0	54.1	54.2	54.3	54.4	54.5	54.6	54.7
0.1	4.463	4.426	4.414	4.186	4.217	4.309	4.301	4.366	4.315	4.342	4.511	4.571	4.569	4.545	4.509
0.2	4.507	4.495	4.479	4.344	4.338	4.342	4.358	4.370	4.497	4.594	4.638	4.642	4.614	4.561	4.515
0.3	4.499	4.507	4.499	4.342	4.350	4.418	4.412	4.559	4.660	4.690	4.704	4.684	4.636	4.579	4.529
0.4	4.434	4.467	4.481	4.317	4.317	4.428	4.465	4.672	4.727	4.739	4.733	4.696	4.640	4.577	4.531
0.5	4.390	4.418	4.426	4.241	4.321	4.374	4.448	4.704	4.749	4.753	4.725	4.680	4.616	4.317	4.436
0.6	4.547	4.346	4.344	4.219	4.172	4.142	4.219	4.686	4.733	4.725	4.690	4.644	4.334	4.317	4.483
0.7	4.563	4.531	4.257	4.253	4.217	4.128	4.497	4.479	4.688	4.672	4.638	4.338	4.334	4.317	4.481
0.8	4.567	4.551	4.505	4.317	4.467	4.575	4.660	4.579	4.446	4.344	4.305	4.321	4.321	4.317	4.360
0.9	4.575	4.547	4.491	4.327	4.644	4.709	4.741	4.672	4.539	4.424	4.317	4.301	4.317	4.317	4.217
1.0	4.559	4.527	4.273	4.467	4.638	4.700	4.757	4.745	4.628	4.499	4.386	4.277	4.289	4.279	4.239
1.1	4.511	4.479	4.122	4.223	4.561	4.672	4.753	4.757	4.688	4.563	4.461	4.368	4.249	4.368	4.430
1.2	4.606	4.628	4.622	4.547	4.475	4.573	4.725	4.743	4.702	4.612	4.513	4.418	4.172	4.444	4.463
1.3	4.642	4.668	4.656	4.569	4.398	4.483	4.594	4.686	4.678	4.630	4.559	4.450	4.360	4.467	4.483
1.4	4.660	4.686	4.666	4.515	4.350	4.410	4.487	4.608	4.628	4.606	4.561	4.483	4.386	4.454	4.491
1.5	4.676	4.690	4.640	4.467	4.154	4.239	4.400	4.483	4.559	4.551	4.527	4.487	4.412	4.434	4.495
1.6	4.690	4.690	4.579	4.414	4.188	4.253	4.229	4.400	4.487	4.507	4.481	4.450	4.402	4.370	4.442
1.7	4.694	4.676	4.531	4.088	4.221	4.253	4.239	4.207	4.392	4.446	4.432	4.386	4.342	4.297	4.313
1.8	4.692	4.628	4.481	4.067	4.156	4.209	4.192	4.559	4.608	4.624	4.592	4.346	4.186	4.283	4.305
1.9	4.684	4.596	4.434	4.317	4.190	4.142	4.515	4.573	4.604	4.636	4.640	4.559	4.446	4.154	4.257
2.0	4.668	4.579	4.497	4.414	4.190	4.172	4.527	4.547	4.569	4.594	4.626	4.561	4.432	4.287	4.638
2.1	4.628	4.555	4.577	4.660	4.192	4.430	4.537	4.549	4.559	4.571	4.579	4.547	4.321	4.596	4.709
2.2	4.563	4.543	4.676	4.690	4.142	4.420	4.515	4.553	4.567	4.563	4.563	4.533	4.317	4.638	4.741
2.3	4.495	4.656	4.678	4.654	4.515	4.749	4.773	4.765	4.559	4.559	4.561	4.515	4.321	4.414	4.751
2.4	4.531	4.579	4.598	4.656	4.739	4.773	4.797	4.781	4.700	4.507	4.531	4.509	4.382	4.209	4.737
2.5	4.398	4.354	4.592	4.668	4.709	4.743	4.769	4.769	4.704	4.553	4.465	4.463	4.317	4.235	4.188
2.6	4.422	4.219	4.561	4.602	4.652	4.686	4.709	4.709	4.692	4.624	4.301	4.406	4.444	4.426	4.174
2.7	4.473	4.209	4.209	4.527	4.561	4.579	4.600	4.610	4.620	4.612	4.497	4.444	4.483	4.479	4.346
2.8	4.491	4.467	4.172	4.063	4.450	4.483	4.511	4.529	4.545	4.543	4.386	4.450	4.511	4.497	4.446
2.9	4.499	4.402	4.063	4.063	4.418	4.454	4.467	4.382	4.279	4.229	4.338	4.452	4.477	4.481	4.430
3.0	4.507	4.305	4.283	4.204	4.446	4.481	4.471	4.432	4.368	4.315	4.688	4.696	4.656	4.628	4.573
3.1	4.368	4.362	4.342	4.297	4.446	4.465	4.446	4.414	4.773	4.767	4.741	4.725	4.700	4.666	4.624
3.2	4.394	4.384	4.368	4.332	4.432	4.446	4.422	4.801	4.832	4.799	4.753	4.709	4.676	4.642	4.612
3.3	4.398	4.386	4.370	4.338	4.414	4.434	4.704	4.817	4.832	4.787	4.739	4.692	4.658	4.626	4.594
3.4	4.398	4.382	4.370	4.323	4.368	4.416	4.388	4.767	4.789	4.757	4.709	4.676	4.644	4.622	4.588
3.5	4.398	4.370	4.396	4.545	4.257	4.382	4.368	4.338	4.690	4.688	4.674	4.654	4.628	4.608	4.575
3.6	4.660	4.670	4.690	4.690	4.640	4.303	4.323	4.527	4.640	4.618	4.515	4.557	4.577	4.559	4.511
3.7	4.688	4.690	4.757	4.757	4.725	4.590	4.209	4.594	4.652	4.646	4.604	4.507	4.414	4.334	4.305
3.8	4.680	4.668	4.765	4.757	4.692	4.640	4.463	4.446	4.567	4.616	4.616	4.563	4.475	4.378	4.368
3.9	4.644	4.690	4.747	4.709	4.680	4.640	4.463	4.440	4.354	4.515	4.545	4.547	4.505	4.410	4.374
4.0	4.608	4.698	4.721	4.686	4.658	4.620	4.513	4.402	4.402	4.418	4.414	4.467	4.483	4.424	4.626
4.1	4.634	4.692	4.688	4.644	4.616	4.582	4.531	4.402	4.424	4.442	4.426	4.368	4.561	4.608	4.660
4.2	4.644	4.670	4.640	4.604	4.579	4.553	4.515	4.422	4.432	4.430	4.418	4.354	4.579	4.602	4.658
4.3	4.620	4.628	4.608	4.575	4.549	4.529	4.499	4.398	4.404	4.495	4.382	4.321	4.533	4.610	4.656
4.4	4.495	4.579	4.575	4.545	4.515	4.497	4.467	4.533	4.658	4.674	4.632	4.267	4.495	4.541	4.628
4.5	4.531	4.515	4.511	4.511	4.487	4.450	4.626	4.696	4.741	4.771	4.765	4.739	4.769	4.680	4.545
4.6	4.539	4.545	4.539	4.436	4.418	4.545	4.624	4.674	4.711	4.745	4.763	4.773	4.765	4.709	4.505
4.7	4.499	4.555	4.531	4.356	4.219	4.525	4.592	4.644	4.690	4.721	4.735	4.743	4.719	4.658	4.475
4.8	4.539	4.479	4.372	4.241	4.253	4.338	4.545	4.612	4.614	4.690	4.692	4.684	4.656	4.579	4.450
4.9	4.547	4.350	4.418	4.418	4.398	4.354	4.263	4.549	4.559	4.559	4.628	4.626	4.596	4.493	4.553
5.0	4.507	4.515	4.515	4.499	4.465	4.426	4.350	4.172	4.535	4.590	4.511	4.231	4.515	4.616	4.592
5.1	4.604	4.604	4.575	4.547	4.515	4.467	4.418	4.416	4.563	4.612	4.636	4.644	4.563	4.622	4.610
5.2	4.664	4.658	4.628	4.596	4.561	4.531	4.483	4.465	4.539	4.584	4.638	4.672	4.642	4.563	4.592
5.3	4.704	4.692	4.668	4.636	4.606	4.571	4.513	4.446	4.515	4.561	4.614	4.636	4.646	4.612	4.727
5.4	4.731	4.731	4.723	4.682	4.652	4.610	4.543	4.446	4.497	4.541	4.579	4.632	4.644	4.692	4.759
5.5	4.741	4.749	4.745	4.713	4.684	4.628	4.531	4.432	4.348	4.499	4.545	4.594	4.596	4.729	4.751
5.6	4.727	4.749	4.749	4.729	4.692	4.622	4.507	4.400	4.446	4.432	4.400	4.499	4.317	4.676	4.704
5.7	4.698	4.745	4.737	4.717	4.664	4.586	4.467	4.483	4.507	4.467	4.420	4.362	4.450	4.467	4.640
5.8	4.654	4.739	4.739	4.688	4.368	4.430	4.497	4.489	4.511	4.497	4.446	4.416	4.481	4.487	4.400
5.9	4.620	4.690	4.676	4.338	4.374	4.414	4.372	4.430	4.418	4.483	4.465	4.434	4.340	4.418	4.368

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 59.3	59.4	59.5	59.6	59.7	59.8	59.9	60.0	60.1	60.2	60.3	60.4	60.5	60.6	60.7
0.1	4.243	4.213	4.106	4.307	4.676	4.709	4.694	4.676	4.563	4.192	4.144	4.338	4.418	4.483	4.537
0.2	4.418	4.321	4.174	4.342	4.676	4.725	4.721	4.678	4.646	4.563	4.249	4.362	4.410	4.467	4.521
0.3	4.463	4.370	4.176	4.418	4.678	4.725	4.719	4.688	4.672	4.594	4.259	4.350	4.402	4.450	4.501
0.4	4.539	4.428	4.297	4.592	4.709	4.723	4.694	4.674	4.644	4.527	4.249	4.338	4.386	4.436	4.499
0.5	4.596	4.519	4.360	4.475	4.660	4.692	4.660	4.614	4.547	4.253	4.231	4.497	4.507	4.499	4.378
0.6	4.644	4.592	4.450	4.164	4.192	4.162	4.305	4.253	4.469	4.499	4.507	4.515	4.531	4.535	4.531
0.7	4.660	4.628	4.067	4.128	4.203	4.338	4.362	4.348	4.515	4.539	4.531	4.531	4.541	4.553	4.563
0.8	4.636	4.612	4.321	3.989	4.263	4.338	4.362	4.346	4.503	4.551	4.515	4.553	4.563	4.551	4.547
0.9	4.531	4.539	4.398	4.402	4.255	4.267	4.291	4.297	4.402	4.448	4.527	4.493	4.612	4.616	4.580
1.0	4.370	4.455	4.467	4.408	4.205	4.209	4.473	4.495	4.418	4.261	4.372	4.628	4.692	4.654	4.634
1.1	4.444	4.491	4.461	4.374	4.213	4.491	4.549	4.571	4.547	4.188	4.064	4.725	4.725	4.660	4.676
1.2	4.434	4.467	4.392	4.192	4.485	4.549	4.580	4.580	4.531	4.483	4.684	4.725	4.733	4.666	4.709
1.3	4.297	4.209	4.164	4.446	4.535	4.571	4.584	4.545	4.499	4.612	4.698	4.731	4.741	4.755	4.749
1.4	4.463	4.231	4.176	4.483	4.543	4.571	4.547	4.507	4.461	4.616	4.682	4.725	4.733	4.741	4.733
1.5	4.580	4.477	4.344	4.450	4.513	4.531	4.501	4.450	4.418	4.551	4.644	4.686	4.703	4.725	4.694
1.6	4.628	4.616	4.475	4.414	4.469	4.487	4.467	4.430	4.370	4.491	4.610	4.644	4.668	4.654	4.660
1.7	4.644	4.646	4.582	4.467	4.390	4.420	4.410	4.386	4.325	4.434	4.515	4.596	4.620	4.628	4.612
1.8	4.660	4.660	4.644	4.584	4.281	4.350	4.370	4.334	4.257	4.055	4.475	4.531	4.571	4.571	4.531
1.9	4.652	4.660	4.644	4.596	4.489	4.273	4.273	4.203	4.060	4.019	4.378	4.418	4.450	4.467	4.418
2.0	4.628	4.640	4.628	4.592	4.467	4.313	4.338	4.360	4.338	3.971	4.382	4.402	4.388	4.360	4.152
2.1	4.612	4.620	4.612	4.563	4.467	4.305	4.338	4.366	4.362	4.154	4.450	4.467	4.479	4.473	4.418
2.2	4.592	4.596	4.563	4.499	4.257	4.297	4.321	4.354	4.340	4.434	4.407	4.489	4.499	4.499	4.467
2.3	4.555	4.547	4.511	4.442	4.545	4.551	4.491	4.321	4.340	4.455	4.481	4.499	4.515	4.515	4.511
2.4	4.499	4.475	4.297	4.382	4.539	4.553	4.531	4.487	4.130	4.461	4.491	4.505	4.515	4.531	4.543
2.5	4.596	4.596	4.580	4.426	4.519	4.547	4.545	4.491	4.422	4.402	4.485	4.507	4.519	4.541	4.553
2.6	4.692	4.602	4.628	4.571	4.465	4.489	4.491	4.450	4.402	4.563	4.600	4.499	4.521	4.545	4.555
2.7	4.725	4.666	4.624	4.580	4.531	4.388	4.422	4.416	4.604	4.703	4.692	4.636	4.507	4.529	4.533
2.8	4.692	4.644	4.610	4.567	4.517	4.457	4.338	4.620	4.733	4.753	4.725	4.660	4.453	4.463	4.442
2.9	4.676	4.628	4.592	4.549	4.507	4.457	4.606	4.751	4.789	4.773	4.727	4.652	4.555	4.660	4.676
3.0	4.654	4.612	4.569	4.531	4.491	4.624	4.757	4.811	4.805	4.765	4.707	4.616	4.596	4.709	4.676
3.1	4.612	4.571	4.545	4.515	4.475	4.753	4.834	4.834	4.805	4.739	4.676	4.513	4.628	4.741	4.709
3.2	4.533	4.501	4.495	4.477	4.757	4.854	4.866	4.838	4.773	4.725	4.644	4.519	4.654	4.757	4.757
3.3	4.479	4.509	4.495	4.467	4.821	4.878	4.870	4.821	4.757	4.686	4.616	4.537	4.644	4.741	4.785
3.4	4.545	4.533	4.515	4.505	4.773	4.838	4.844	4.795	4.737	4.664	4.563	4.531	4.628	4.698	4.751
3.5	4.571	4.571	4.501	4.527	4.515	4.493	4.620	4.749	4.723	4.636	4.450	4.547	4.600	4.644	4.676
3.6	4.604	4.600	4.584	4.563	4.539	4.507	4.491	4.584	4.620	4.571	4.547	4.499	4.338	4.247	4.178
3.7	4.618	4.614	4.596	4.571	4.547	4.515	4.491	4.434	4.503	4.620	4.612	4.571	4.507	4.432	4.487
3.8	4.622	4.612	4.592	4.555	4.515	4.483	4.446	4.217	4.440	4.575	4.632	4.618	4.434	4.531	4.539
3.9	4.608	4.573	4.531	4.491	4.426	4.509	4.547	4.586	4.557	4.537	4.531	4.442	4.519	4.547	4.539
4.0	4.557	4.491	4.436	4.402	4.364	4.507	4.563	4.580	4.594	4.580	4.555	4.336	4.541	4.545	4.541
4.1	4.241	4.418	4.344	4.491	4.334	4.497	4.515	4.563	4.561	4.563	4.497	4.495	4.539	4.539	4.539
4.2	4.241	4.184	4.400	4.594	4.596	4.549	4.509	4.531	4.547	4.481	4.519	4.475	4.531	4.531	4.533
4.3	4.247	4.370	4.582	4.608	4.596	4.569	4.515	4.299	4.578	4.644	4.676	4.692	4.515	4.519	4.531
4.4	4.338	4.499	4.580	4.606	4.596	4.531	4.489	4.285	4.670	4.725	4.737	4.783	4.741	4.511	4.511
4.5	4.275	4.495	4.543	4.543	4.521	4.455	4.261	4.692	4.753	4.789	4.821	4.838	4.821	4.338	4.370
4.6	4.057	4.160	4.217	4.291	4.467	4.463	4.692	4.771	4.821	4.854	4.882	4.882	4.848	4.215	4.580
4.7	4.003	4.313	4.499	4.537	4.543	4.527	4.757	4.830	4.870	4.894	4.902	4.862	4.858	4.628	4.604
4.8	4.493	4.555	4.586	4.580	4.571	4.555	4.823	4.866	4.902	4.902	4.878	4.830	4.805	4.640	4.628
4.9	4.539	4.596	4.612	4.596	4.590	4.563	4.821	4.902	4.906	4.882	4.795	4.757	4.729	4.571	4.624
5.0	4.434	4.596	4.612	4.602	4.575	4.509	4.795	4.884	4.864	4.309	4.747	4.686	4.467	4.386	4.602
5.1	4.440	4.515	4.547	4.535	4.434	4.434	4.438	4.400	4.301	4.515	4.539	4.410	4.273	4.114	4.495
5.2	4.487	4.487	4.434	4.511	4.511	4.507	4.513	4.497	4.481	4.390	4.491	4.311	4.289	4.039	4.477
5.3	4.407	4.463	4.563	4.580	4.590	4.580	4.578	4.571	4.565	4.559	4.515	4.194	4.200	4.313	4.547
5.4	4.394	4.398	4.624	4.644	4.644	4.644	4.646	4.652	4.644	4.638	4.612	4.213	4.211	4.446	4.563
5.5	4.428	4.563	4.666	4.725	4.725	4.709	4.725	4.725	4.725	4.700	4.676	4.588	4.321	4.529	4.565
5.6	4.497	4.483	4.698	4.755	4.757	4.757	4.775	4.779	4.769	4.741	4.703	4.620	4.515	4.575	4.559
5.7	4.477	4.407	4.656	4.753	4.763	4.773	4.769	4.769	4.765	4.725	4.668	4.580	4.569	4.580	4.535
5.8	4.467	4.311	4.556	4.590	4.547	4.733	4.745	4.676	4.614	4.571	4.483	4.515	4.563	4.563	4.515
5.9	4.257	4.225	4.126	4.273	4.273	4.321	4.354	4.668	4.160	4.515	4.257	4.483	4.506	4.501	4.467

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 65.3	65.4	65.5	65.6	65.7	65.8	65.9	66.0	66.1	66.2	66.3	66.4	66.5	66.6	66.7
0.1	4.418	4.418	4.418	4.380	4.376	4.346	4.215	4.128	4.112	4.078	4.372	4.434	4.455	4.465	4.423
0.2	4.473	4.499	4.491	4.463	4.434	4.378	4.338	4.144	4.120	4.418	4.463	4.499	4.519	4.526	4.488
0.3	4.434	4.453	4.489	4.483	4.434	4.378	4.370	4.152	4.432	4.467	4.507	4.539	4.563	4.565	4.544
0.4	4.338	4.304	4.362	4.547	4.547	4.499	4.273	4.154	4.467	4.507	4.541	4.563	4.571	4.577	4.552
0.5	4.217	4.491	4.604	4.618	4.602	4.543	4.487	4.334	4.491	4.519	4.549	4.565	4.571	4.565	4.532
0.6	4.263	4.531	4.600	4.620	4.602	4.503	4.499	4.354	4.475	4.511	4.535	4.547	4.547	4.526	4.441
0.7	4.422	4.509	4.537	4.555	4.563	4.509	4.426	4.112	4.418	4.455	4.483	4.495	4.481	4.435	4.354
0.8	4.418	4.469	4.485	4.491	4.475	4.418	4.261	4.136	4.229	4.313	4.305	4.273	4.273	4.188	4.060
0.9	4.346	4.418	4.434	4.426	4.380	4.303	4.156	4.150	4.253	3.995	4.120	4.118	4.023	4.196	4.050
1.0	4.249	4.332	4.352	4.475	4.305	4.370	4.338	4.251	4.114	4.152	4.144	4.261	4.338	4.358	4.229
1.1	4.313	4.571	4.592	4.580	4.580	4.563	4.374	4.267	4.088	4.148	4.338	4.366	4.418	4.423	4.273
1.2	4.321	4.636	4.644	4.628	4.634	4.636	4.573	4.233	4.067	4.368	4.434	4.489	4.503	4.455	4.277
1.3	4.330	4.666	4.684	4.676	4.678	4.676	4.636	4.499	4.426	4.491	4.523	4.555	4.531	4.447	4.269
1.4	4.325	4.660	4.692	4.703	4.694	4.676	4.610	4.491	4.463	4.523	4.561	4.561	4.521	4.439	4.307
1.5	4.338	4.531	4.644	4.686	4.676	4.644	4.523	4.386	4.418	4.455	4.491	4.499	4.479	4.407	4.285
1.6	4.325	4.233	4.517	4.614	4.620	4.515	4.386	4.176	4.338	4.362	4.354	4.368	4.388	4.350	4.245
1.7	4.301	4.194	4.394	4.491	4.497	4.368	4.192	4.176	4.152	4.289	4.281	4.203	4.257	4.196	4.158
1.8	4.235	3.942	4.031	4.321	4.273	4.406	4.418	4.436	4.455	4.338	4.182	4.160	4.102	3.937	4.137
1.9	4.176	4.233	4.251	4.233	4.015	4.450	4.448	4.471	4.495	4.475	3.987	3.971	3.979	3.941	4.002
2.0	4.188	4.233	4.201	4.265	4.231	4.475	4.509	4.497	4.519	4.442	3.987	4.176	4.219	4.220	4.176
2.1	4.346	4.378	4.241	4.255	4.414	4.491	4.539	4.571	4.555	4.338	4.128	4.257	4.261	4.261	4.241
2.2	4.382	4.450	4.402	4.233	4.465	4.511	4.563	4.610	4.582	4.426	4.194	4.281	4.491	4.520	4.510
2.3	4.370	4.450	4.481	4.448	4.467	4.523	4.596	4.626	4.604	4.511	4.047	4.426	4.588	4.609	4.583
2.4	4.344	4.412	4.434	4.378	4.168	4.517	4.596	4.620	4.557	4.515	4.033	4.499	4.018	4.609	4.573
2.5	4.301	4.370	4.370	4.297	4.144	4.146	4.533	4.551	4.547	4.408	3.993	4.515	4.624	4.619	4.569
2.6	4.261	4.332	4.305	4.108	4.120	4.124	4.138	4.305	4.378	4.334	4.055	4.533	4.602	4.597	4.552
2.7	4.285	4.249	4.071	4.051	4.055	4.051	4.035	4.241	4.267	4.275	4.259	4.517	4.539	4.514	4.473
2.8	4.241	4.273	4.209	4.067	4.233	4.217	4.047	4.301	4.297	4.321	4.311	4.408	4.450	4.423	4.372
2.9	4.305	4.281	4.233	4.273	4.273	4.261	4.198	4.325	4.342	4.342	4.321	4.303	4.243	4.123	4.253
3.0	4.321	4.273	4.257	4.285	4.283	4.273	4.241	4.338	4.362	4.346	4.325	4.307	4.257	4.123	4.309
3.1	4.311	4.249	4.273	4.281	4.273	4.261	4.241	4.315	4.362	4.354	4.338	4.315	4.249	4.020	4.342
3.2	4.273	4.273	4.265	4.273	4.271	4.241	4.184	4.209	4.265	4.338	4.338	4.273	4.096	4.006	4.342
3.3	4.281	4.289	4.281	4.126	4.229	4.249	4.245	4.241	4.231	4.144	4.128	4.075	4.067	4.073	4.340
3.4	4.273	4.285	4.275	4.402	4.493	4.563	4.219	4.213	4.209	4.031	4.100	4.047	4.073	4.115	4.269
3.5	4.174	4.231	4.209	4.402	4.499	4.580	4.555	4.323	4.346	4.287	4.255	4.221	4.172	4.113	4.115
3.6	4.192	4.263	4.305	4.402	4.515	4.580	4.563	4.313	4.301	4.311	4.311	4.265	4.223	4.099	4.107
3.7	4.231	4.273	4.261	4.402	4.515	4.580	4.571	4.531	4.120	4.338	4.321	4.277	4.239	4.067	4.099
3.8	4.257	4.241	4.213	4.356	4.531	4.596	4.582	4.557	4.078	4.338	4.338	4.297	4.257	4.220	4.099
3.9	4.209	4.209	4.184	4.368	4.531	4.612	4.596	4.555	4.031	4.305	4.370	4.330	4.281	4.241	4.190
4.0	4.267	4.065	4.007	4.343	4.507	4.612	4.596	4.467	4.017	4.063	4.370	4.354	4.301	4.259	4.216
4.1	4.338	4.297	4.249	4.305	4.434	4.533	4.233	4.094	4.239	4.055	4.336	4.338	4.295	4.168	4.198
4.2	4.334	4.305	4.257	4.205	4.257	4.281	4.289	4.237	4.237	4.249	4.132	4.192	4.241	4.301	4.338
4.3	4.321	4.297	4.263	4.200	4.277	4.291	4.289	4.273	4.209	4.233	4.402	4.445	4.418	4.368	4.324
4.4	4.313	4.297	4.269	4.338	4.366	4.372	4.271	4.261	4.235	4.467	4.499	4.511	4.493	4.447	4.358
4.5	4.299	4.362	4.392	4.428	4.428	4.434	4.426	4.225	4.459	4.515	4.531	4.523	4.503	4.486	4.433
4.6	4.338	4.394	4.416	4.438	4.442	4.450	4.453	4.434	4.469	4.521	4.517	4.503	4.487	4.480	4.492
4.7	4.273	4.404	4.428	4.446	4.459	4.405	4.407	4.457	4.479	4.507	4.493	4.483	4.465	4.447	4.500
4.8	4.338	4.410	4.434	4.450	4.467	4.475	4.475	4.455	4.432	4.475	4.469	4.450	4.434	4.415	4.107
4.9	4.338	4.338	4.426	4.450	4.459	4.467	4.467	4.430	4.338	4.426	4.424	4.386	4.300	4.342	4.056
5.0	4.273	4.305	4.219	4.346	4.410	4.438	4.442	4.120	4.257	4.273	4.323	4.289	4.080	4.063	4.034
5.1	4.213	4.144	4.338	4.410	4.354	4.259	4.192	4.325	4.346	4.338	4.273	4.335	4.005	3.945	4.146
5.2	4.160	4.160	4.209	4.346	4.338	4.259	4.410	4.426	4.418	4.402	4.366	4.338	4.015	3.992	4.277
5.3	4.241	4.257	4.253	4.196	4.142	4.499	4.499	4.493	4.409	4.457	4.442	4.356	4.035	4.184	4.362
5.4	4.257	4.273	4.287	4.271	4.578	4.560	4.555	4.551	4.541	4.519	4.487	4.366	4.047	4.342	4.465
5.5	4.241	4.271	4.289	4.537	4.636	4.636	4.628	4.614	4.596	4.580	4.489	4.120	4.047	4.401	4.401
5.6	4.235	4.201	4.265	4.541	4.636	4.682	4.676	4.608	4.000	4.596	4.096	4.112	4.047	4.350	4.411
5.7	4.235	4.257	4.273	4.527	4.636	4.713	4.729	4.721	4.000	4.334	4.003	4.338	4.378	4.340	4.350
5.8	4.227	4.241	4.245	4.461	4.571	4.608	4.725	4.717	4.402	4.360	4.426	4.455	4.467	4.455	4.309
5.9	4.192	4.209	4.196	4.055	4.489	4.578	4.652	4.622	4.104	4.360	4.430	4.434	4.434	4.447	4.403

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 71.3	71.4	71.5	71.6	71.7	71.8	71.9	72.0	72.1	72.2	72.3	72.4	72.5	72.6	72.7
0.1	4.052	4.196	4.558	4.629	4.633	4.609	4.577	4.532	4.496	4.407	4.277	4.002	3.994	4.245	4.277
0.2	4.050	4.229	4.605	4.650	4.650	4.617	4.579	4.524	4.504	4.419	4.309	4.200	4.196	4.247	4.277
0.3	4.048	4.455	4.607	4.629	4.621	4.599	4.567	4.518	4.496	4.415	4.340	4.245	4.257	4.206	4.253
0.4	4.180	4.471	4.554	4.560	4.552	4.552	4.542	4.504	4.484	4.403	4.338	4.245	4.257	4.164	4.154
0.5	4.366	4.342	4.251	4.378	4.473	4.500	4.504	4.473	4.449	4.384	4.307	4.212	4.148	4.277	4.261
0.6	4.484	4.390	4.293	4.164	4.342	4.366	4.350	4.362	4.358	4.342	4.277	4.034	4.293	4.358	4.330
0.7	4.544	4.441	4.342	4.233	4.245	4.275	4.277	4.342	4.390	4.224	4.050	4.071	4.340	4.374	4.366
0.8	4.595	4.488	4.388	4.277	4.231	4.289	4.358	4.390	4.467	4.520	4.512	4.437	4.328	4.352	4.368
0.9	4.641	4.540	4.439	4.332	4.226	4.237	4.342	4.421	4.496	4.536	4.500	4.415	4.312	4.326	4.376
1.0	4.672	4.585	4.490	4.368	4.263	4.164	4.348	4.437	4.502	4.536	4.488	4.403	4.309	4.318	4.362
1.1	4.668	4.617	4.526	4.407	4.309	3.986	4.346	4.757	4.731	4.666	4.662	4.629	4.585	4.536	4.512
1.2	4.641	4.617	4.558	4.447	4.299	3.943	4.342	4.848	4.844	4.814	4.771	4.741	4.731	4.674	4.629
1.3	4.581	4.585	4.536	4.378	4.067	3.947	4.131	4.884	4.868	4.876	4.834	4.793	4.747	4.726	4.650
1.4	4.518	4.520	4.382	4.231	4.069	4.067	4.131	4.828	4.844	4.826	4.781	4.757	4.729	4.650	4.605
1.5	4.453	4.123	4.115	4.447	4.471	4.471	4.063	4.601	4.747	4.747	4.731	4.692	4.635	4.585	4.540
1.6	4.261	4.392	4.439	4.471	4.500	4.516	4.500	4.342	4.666	4.666	4.646	4.611	4.567	4.516	4.471
1.7	4.346	4.390	4.423	4.455	4.488	4.504	4.504	4.439	4.148	4.597	4.569	4.536	4.494	4.439	4.386
1.8	4.338	4.368	4.407	4.439	4.463	4.482	4.488	4.423	4.350	4.342	4.143	4.342	4.386	4.451	4.496
1.9	4.301	4.354	4.390	4.423	4.439	4.449	4.455	4.407	4.407	4.471	4.354	4.307	4.403	4.488	4.542
2.0	4.119	4.320	4.366	4.388	4.390	4.399	4.407	4.346	4.463	4.625	4.641	4.524	4.390	4.492	4.563
2.1	4.611	4.544	4.374	4.342	4.356	4.356	4.350	4.390	4.520	4.666	4.666	4.662	4.581	4.431	4.522
2.2	4.662	4.650	4.593	4.439	4.265	4.261	4.103	4.423	4.565	4.674	4.682	4.660	4.536	4.370	4.423
2.3	4.779	4.765	4.731	4.639	4.455	4.079	4.067	4.407	4.550	4.633	4.650	4.629	4.482	4.366	4.245
2.4	4.779	4.779	4.771	4.726	4.619	4.455	4.164	4.261	4.447	4.571	4.597	4.569	4.459	4.050	4.229
2.5	4.729	4.739	4.747	4.682	4.633	4.342	4.188	4.261	4.293	4.299	4.366	4.455	4.038	4.261	4.277
2.6	4.520	4.552	4.587	4.455	4.326	4.109	4.180	4.245	4.285	4.324	4.301	4.261	4.239	4.301	4.326
2.7	4.318	4.257	4.026	4.342	4.348	4.119	4.166	4.241	4.273	4.318	4.322	4.309	4.261	4.277	4.342
2.8	4.358	4.295	4.054	4.309	4.352	4.089	4.164	4.208	4.243	4.289	4.309	4.305	4.265	4.212	4.277
2.9	4.358	4.297	4.030	4.275	4.328	4.182	4.200	4.135	4.164	4.251	4.269	4.261	4.241	4.229	4.196
3.0	4.324	4.229	4.261	4.275	4.277	4.277	4.265	4.216	4.026	4.190	4.277	4.279	4.340	4.342	4.277
3.1	4.263	4.326	4.322	4.328	4.326	4.326	4.320	4.309	4.245	4.342	4.372	4.390	4.390	4.407	4.374
3.2	4.346	4.366	4.368	4.372	4.374	4.388	4.378	4.376	4.326	4.382	4.433	4.449	4.453	4.469	4.439
3.3	4.360	4.372	4.374	4.390	4.403	4.415	4.419	4.407	4.352	4.423	4.480	4.492	4.498	4.516	4.496
3.4	4.326	4.352	4.358	4.366	4.390	4.413	4.415	4.390	4.338	4.435	4.520	4.536	4.542	4.556	4.536
3.5	4.374	4.164	4.162	4.226	4.301	4.352	4.356	4.109	4.063	4.455	4.552	4.585	4.585	4.601	4.569
3.6	4.480	4.265	4.160	4.235	4.241	4.180	4.253	4.220	3.986	4.121	4.587	4.629	4.646	4.650	4.605
3.7	4.581	4.407	4.210	4.172	4.164	4.374	4.388	4.344	4.305	4.295	4.617	4.682	4.708	4.690	4.625
3.8	4.696	4.552	4.374	4.160	3.961	4.439	4.451	4.437	4.411	4.390	4.569	4.731	4.731	4.698	4.617
3.9	4.739	4.662	4.504	4.322	4.368	4.429	4.437	4.423	4.415	4.386	4.350	4.650	4.698	4.664	4.583
4.0	4.692	4.666	4.585	4.439	4.342	4.390	4.390	4.360	4.374	4.370	4.301	4.307	4.342	4.342	4.309
4.1	4.597	4.619	4.556	4.488	4.261	4.342	4.342	4.342	4.342	4.342	4.115	4.186	4.419	4.277	4.237
4.2	4.589	4.552	4.399	4.403	4.105	4.305	4.293	4.455	4.305	4.301	4.247	4.413	4.484	4.496	4.429
4.3	4.380	4.467	4.512	4.496	4.431	4.346	4.488	4.548	4.508	4.182	4.342	4.471	4.516	4.480	4.439
4.4	4.335	4.473	4.528	4.552	4.540	4.552	4.589	4.633	4.575	4.233	4.445	4.536	4.516	4.482	4.439
4.5	4.372	4.449	4.504	4.544	4.536	4.633	4.674	4.682	4.601	4.342	4.504	4.544	4.520	4.488	4.455
4.6	4.403	4.423	4.471	4.516	4.471	4.601	4.682	4.698	4.650	4.423	4.542	4.552	4.520	4.502	4.471
4.7	4.380	4.390	4.423	4.457	4.374	4.548	4.629	4.666	4.643	4.439	4.524	4.548	4.536	4.520	4.496
4.8	4.271	4.569	4.589	4.500	4.390	4.245	4.569	4.577	4.585	4.293	4.382	4.439	4.439	4.439	4.455
4.9	4.524	4.583	4.627	4.595	4.512	4.455	4.342	4.309	4.196	4.520	4.439	4.380	4.342	4.143	4.131
5.0	4.536	4.585	4.619	4.569	4.532	4.496	4.439	4.536	4.579	4.569	4.455	4.380	4.340	4.277	4.099
5.1	4.534	4.589	4.569	4.475	4.439	4.407	4.488	4.504	4.536	4.565	4.469	4.374	4.307	4.348	4.411
5.2	4.522	4.488	4.382	4.342	4.326	4.417	4.471	4.504	4.520	4.506	4.437	4.342	4.374	4.431	4.534
5.3	4.382	4.130	4.148	3.994	4.261	4.342	4.407	4.455	4.180	4.220	4.358	4.407	4.455	4.504	4.609
5.4	4.380	4.307	4.067	4.083	4.067	4.220	4.309	4.374	4.360	4.326	4.350	4.471	4.536	4.629	4.690
5.5	4.589	4.488	4.050	4.099	4.083	4.407	4.435	4.421	4.392	4.374	4.358	4.471	4.595	4.704	4.771
5.6	4.678	4.552	4.000	4.020	4.028	4.437	4.459	4.455	4.425	4.405	4.390	4.342	4.581	4.729	4.812
5.7	4.617	4.492	4.083	4.095	4.089	4.366	4.465	4.455	4.439	4.407	4.397	4.342	4.261	4.660	4.803
5.8	4.546	4.435	4.099	4.131	4.164	4.166	4.407	4.431	4.415	4.382	4.245	4.216	4.131	4.148	4.672
5.9	4.471	4.040	4.083	4.148	4.180	4.180	4.342	4.342	4.069	4.156	4.247	4.196	4.131	4.135	4.301

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 77.3	77.4	77.5	77.6	77.7	77.8	77.9	78.0	78.1	78.2	78.3	78.4	78.5	78.6	78.7
0.1	4.530	4.471	4.214	4.180	4.164	4.148	3.979	4.124	4.237	4.287	4.301	4.277	4.229	4.265	4.279
0.2	4.534	4.471	4.224	4.261	4.245	4.200	4.059	4.184	4.289	4.346	4.366	4.358	4.281	4.257	4.229
0.3	4.536	4.459	4.212	4.245	4.229	4.196	4.124	4.136	4.245	4.342	4.364	4.358	4.311	4.176	4.019
0.4	4.502	4.374	4.148	4.180	4.196	4.192	4.132	4.096	4.180	4.277	4.338	4.342	4.311	4.200	4.019
0.5	4.407	4.261	4.002	4.131	4.152	4.162	4.100	4.065	4.116	4.217	4.285	4.293	4.336	4.194	4.128
0.6	4.277	4.156	4.148	4.164	4.176	4.245	4.152	4.019	4.084	4.164	4.213	4.231	4.243	4.378	4.412
0.7	4.139	4.131	4.277	4.314	4.342	4.309	4.301	4.071	4.059	4.037	4.061	4.067	4.356	4.410	4.450
0.8	4.046	4.164	4.342	4.358	4.374	4.362	4.366	4.098	4.104	4.069	4.160	4.150	4.374	4.434	4.471
0.9	4.058	4.123	4.382	4.390	4.420	4.459	4.471	4.108	4.156	4.229	4.259	4.233	4.386	4.454	4.495
1.0	4.285	4.340	4.390	4.407	4.422	4.454	4.471	4.465	4.164	4.265	4.293	4.261	4.374	4.471	4.517
1.1	4.301	4.326	4.368	4.433	4.471	4.499	4.495	4.477	4.104	4.275	4.340	4.297	4.243	4.402	4.465
1.2	4.269	4.303	4.364	4.407	4.454	4.483	4.481	4.454	4.366	4.277	4.342	4.309	4.265	4.229	4.174
1.3	4.218	4.285	4.326	4.366	4.406	4.422	4.420	4.386	4.100	4.261	4.261	4.249	4.196	4.202	4.176
1.4	4.156	4.241	4.285	4.314	4.340	4.342	4.340	4.106	4.051	4.162	4.138	4.136	4.096	4.112	4.071
1.5	4.392	4.139	4.188	4.212	4.261	4.225	4.213	4.188	4.071	4.180	4.221	4.213	4.180	4.051	3.991
1.6	4.451	4.299	3.943	4.245	4.245	4.277	4.253	4.219	4.200	4.249	4.289	4.277	4.249	4.209	4.116
1.7	4.496	4.366	4.214	4.255	4.307	4.323	4.338	4.283	4.237	4.287	4.334	4.340	4.305	4.277	4.088
1.8	4.536	4.407	4.247	4.285	4.309	4.342	4.342	4.342	4.233	4.285	4.346	4.362	4.358	4.342	4.192
1.9	4.546	4.459	4.307	4.245	4.317	4.342	4.366	4.366	4.293	4.305	4.370	4.390	4.386	4.364	4.277
2.0	4.520	4.488	4.366	4.206	4.283	4.362	4.368	4.362	4.342	4.245	4.342	4.372	4.346	4.356	4.180
2.1	4.451	4.459	4.407	4.285	4.192	4.301	4.368	4.342	4.184	4.124	4.144	4.263	4.340	4.338	4.118
2.2	4.342	4.390	4.372	4.322	4.196	4.164	4.340	4.200	4.136	4.184	4.281	4.317	4.237	4.192	4.007
2.3	4.198	4.261	4.326	4.322	4.255	4.140	4.110	4.154	4.134	4.299	4.342	4.358	4.350	4.313	4.198
2.4	4.071	4.131	4.212	4.277	4.251	4.168	4.128	4.164	4.200	4.293	4.340	4.338	4.342	4.281	3.950
2.5	4.397	4.040	4.115	4.204	4.196	4.229	4.336	4.436	4.444	4.346	4.229	4.245	4.245	4.200	3.944
2.6	4.403	4.277	4.050	4.133	4.148	4.188	4.446	4.517	4.519	4.438	4.146	4.122	4.184	4.108	4.116
2.7	4.374	4.277	4.020	4.026	4.156	4.414	4.503	4.565	4.575	4.495	4.327	4.213	4.198	4.176	4.148
2.8	4.342	4.083	4.018	4.018	4.299	4.495	4.551	4.602	4.608	4.463	4.340	4.215	4.192	4.164	4.136
2.9	4.170	4.172	4.164	4.115	4.454	4.535	4.588	4.640	4.634	4.438	4.338	4.196	4.162	4.132	4.116
3.0	4.235	4.224	4.218	4.206	4.515	4.579	4.626	4.668	4.636	4.422	4.174	4.168	4.136	4.108	4.082
3.1	4.251	4.237	4.229	4.212	4.543	4.610	4.656	4.725	4.588	4.428	4.100	4.132	4.116	4.084	4.039
3.2	4.245	4.231	4.220	4.196	4.567	4.608	4.658	4.662	4.559	4.414	4.007	4.084	4.084	4.057	4.039
3.3	4.237	4.220	4.210	4.180	4.527	4.575	4.577	4.485	4.477	4.067	4.013	4.084	4.209	4.227	4.106
3.4	4.196	4.196	4.196	4.364	4.376	4.406	4.406	4.356	4.172	4.114	4.096	4.069	4.198	4.241	4.055
3.5	4.239	4.034	4.067	4.390	4.406	4.422	4.422	4.390	4.213	4.136	4.164	4.307	4.213	4.229	4.184
3.6	4.265	4.034	3.986	4.372	4.390	4.402	4.408	4.374	4.471	4.454	4.424	4.374	4.307	4.180	4.217
3.7	4.303	4.309	4.253	4.342	4.376	4.376	4.374	4.501	4.551	4.519	4.454	4.394	4.325	4.253	4.200
3.8	4.366	4.368	4.366	4.277	4.350	4.366	4.344	4.543	4.567	4.549	4.471	4.406	4.338	4.313	4.438
3.9	4.390	4.401	4.415	4.415	4.273	4.287	4.275	4.519	4.551	4.567	4.471	4.406	4.342	4.370	4.497
4.0	4.415	4.425	4.445	4.463	4.454	4.196	4.221	4.354	4.543	4.557	4.473	4.406	4.342	4.342	4.438
4.1	4.433	4.445	4.463	4.496	4.505	4.495	4.196	4.342	4.499	4.519	4.426	4.404	4.301	4.261	4.344
4.2	4.455	4.471	4.496	4.512	4.535	4.547	4.511	4.368	4.265	4.164	4.200	4.166	4.277	4.293	4.245
4.3	4.486	4.506	4.528	4.550	4.563	4.577	4.551	4.336	4.168	4.124	4.067	4.047	4.217	4.253	4.180
4.4	4.488	4.536	4.560	4.583	4.600	4.610	4.537	4.251	4.190	4.190	4.132	4.207	4.071	4.055	4.180
4.5	4.301	4.514	4.550	4.585	4.608	4.604	4.342	4.217	4.213	4.200	4.144	4.229	4.152	4.098	4.184
4.6	4.342	4.291	4.439	4.504	4.539	4.483	4.342	4.192	4.200	4.188	4.071	4.211	4.154	4.114	4.211
4.7	4.348	4.277	4.018	4.194	4.382	4.297	4.338	4.116	4.152	4.136	4.152	4.156	4.152	4.096	4.198
4.8	4.326	4.212	4.099	4.180	4.180	4.334	4.338	4.221	4.253	4.265	4.231	4.235	4.079	4.071	4.207
4.9	4.285	4.107	4.083	4.148	4.140	4.338	4.340	4.309	4.321	4.342	4.271	4.241	4.100	4.031	4.061
5.0	4.261	4.247	4.198	4.042	4.104	4.342	4.223	4.342	4.342	4.311	4.269	4.154	4.184	3.987	4.132
5.1	4.309	4.291	4.251	4.180	4.180	4.100	4.495	4.551	4.551	4.531	4.132	4.227	4.233	4.180	4.116
5.2	4.338	4.301	4.261	4.212	4.209	4.511	4.588	4.610	4.606	4.584	4.493	4.277	4.247	4.192	4.148
5.3	4.342	4.307	4.275	4.208	4.469	4.575	4.624	4.632	4.624	4.602	4.499	4.293	4.257	4.200	4.148
5.4	4.362	4.318	4.261	4.277	4.519	4.584	4.624	4.630	4.616	4.584	4.340	4.299	4.259	4.200	4.156
5.5	4.350	4.301	4.206	4.415	4.519	4.575	4.608	4.616	4.590	4.515	4.340	4.305	4.255	4.192	4.033
5.6	4.316	4.265	4.247	4.419	4.499	4.537	4.559	4.567	4.531	4.366	4.362	4.311	4.261	4.192	3.977
5.7	4.263	4.067	4.285	4.382	4.438	4.454	4.471	4.479	4.390	4.384	4.366	4.329	4.265	4.342	4.047
5.8	4.180	4.028	4.239	4.307	4.342	4.354	4.350	4.301	4.265	4.374	4.372	4.329	4.342	4.386	4.329
5.9	4.123	4.115	4.016	4.194	4.241	4.245	4.225	4.104	4.172	4.253	4.340	4.233	4.342	4.390	4.354

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 83.3	83.4	83.5	83.6	83.7	83.8	83.9	84.0	84.1	84.2	84.3	84.4	84.5	84.6	84.7
0.1	4.188	4.227	4.360	4.358	4.394	4.442	4.491	4.565	4.547	4.569	4.561	4.541	4.483	4.166	4.247
0.2	4.196	4.233	4.225	4.358	4.438	4.517	4.555	4.584	4.592	4.606	4.594	4.566	4.531	4.368	4.279
0.3	4.180	4.255	4.225	4.422	4.485	4.523	4.563	4.588	4.604	4.618	4.600	4.572	4.545	4.251	4.287
0.4	4.176	4.200	4.200	4.426	4.491	4.523	4.553	4.579	4.592	4.614	4.594	4.570	4.535	4.233	4.253
0.5	3.991	4.136	4.142	4.426	4.487	4.519	4.543	4.563	4.577	4.584	4.561	4.537	4.497	4.235	4.174
0.6	4.116	4.057	4.019	4.424	4.485	4.503	4.519	4.529	4.535	4.523	4.505	4.473	4.408	3.989	4.209
0.7	4.128	4.116	4.096	4.394	4.454	4.459	4.454	4.432	4.394	4.364	4.305	4.275	3.993	3.991	4.166
0.8	4.106	4.098	4.071	4.065	4.342	4.364	4.269	4.164	4.200	4.202	4.199	4.189	4.021	4.021	4.037
0.9	4.088	4.071	4.057	4.039	4.019	4.007	4.092	4.196	4.221	4.249	4.243	4.223	4.023	4.045	4.005
1.0	4.067	4.051	4.037	4.007	3.997	3.985	4.051	4.116	4.098	4.265	4.251	4.239	3.981	3.965	4.037
1.1	4.293	4.259	4.257	3.991	3.969	4.079	4.204	4.152	4.094	4.144	4.235	4.213	4.090	4.168	4.263
1.2	4.342	4.342	4.329	4.281	4.090	4.106	4.233	4.180	4.136	4.088	3.947	4.074	4.231	4.328	4.368
1.3	4.374	4.364	4.346	4.315	4.130	4.116	4.249	4.235	4.136	4.098	3.989	4.005	4.211	4.352	4.376
1.4	4.394	4.374	4.354	4.338	4.176	4.120	4.229	4.180	4.102	4.031	4.108	3.989	4.118	4.295	4.352
1.5	4.374	4.378	4.362	4.334	4.213	4.084	4.120	4.257	4.374	4.390	4.457	4.436	3.989	4.197	4.263
1.6	4.263	4.293	4.245	4.285	4.198	4.071	4.071	4.338	4.420	4.521	4.503	4.469	3.969	4.168	4.249
1.7	4.112	4.106	4.104	4.207	4.168	4.082	4.088	4.342	4.394	4.467	4.465	4.477	4.158	4.291	4.352
1.8	4.017	3.971	4.136	4.174	4.136	4.039	4.108	4.342	4.378	4.404	4.422	4.408	4.267	4.386	4.374
1.9	4.410	4.112	4.204	4.265	4.277	4.182	4.055	4.196	4.309	4.376	4.328	4.146	4.295	4.352	4.360
2.0	4.515	4.483	4.416	4.277	4.253	4.190	4.100	4.082	4.114	4.219	4.142	4.118	4.118	4.184	4.263
2.1	4.553	4.499	4.416	4.263	4.152	4.120	4.084	4.491	4.376	4.200	4.110	4.144	4.078	4.352	4.376
2.2	4.582	4.499	4.215	4.196	4.073	4.519	4.571	4.582	4.571	4.267	4.039	4.094	4.045	4.352	4.376
2.3	4.585	4.467	4.168	4.138	4.471	4.531	4.555	4.563	4.555	4.539	4.489	3.965	4.201	4.303	4.307
2.4	4.557	4.459	4.144	4.396	4.489	4.501	4.511	4.529	4.535	4.535	4.505	4.045	4.215	4.249	4.235
2.5	4.507	4.148	4.084	4.422	4.454	4.459	4.467	4.487	4.491	4.493	4.481	4.424	4.172	4.182	4.152
2.6	4.487	4.001	4.160	4.410	4.418	4.422	4.426	4.442	4.459	4.457	4.441	4.432	4.078	4.106	4.062
2.7	4.071	4.088	4.162	4.378	4.378	4.394	4.394	4.416	4.426	4.426	4.410	4.406	4.322	3.981	4.247
2.8	4.235	4.194	4.029	4.340	4.346	4.358	4.364	4.374	4.390	4.394	4.376	4.348	4.126	4.239	4.283
2.9	4.336	4.340	4.334	4.277	4.293	4.293	4.305	4.200	4.136	4.174	4.174	4.182	4.154	4.247	4.287
3.0	4.342	4.342	4.342	4.241	4.077	3.991	4.021	4.112	4.136	4.150	4.142	4.160	4.160	4.199	4.277
3.1	4.346	4.346	4.342	4.267	4.079	4.116	4.110	4.084	4.065	4.110	4.110	4.126	4.134	4.122	4.241
3.2	4.346	4.346	4.334	4.293	4.104	4.406	4.297	4.233	4.132	4.003	4.035	4.066	4.094	4.098	4.061
3.3	4.344	4.342	4.332	4.299	4.158	4.402	4.424	4.374	4.265	4.116	3.997	4.035	4.061	4.076	4.045
3.4	4.348	4.354	4.346	4.321	4.291	4.519	4.543	4.501	4.410	4.291	4.150	4.005	4.037	4.051	4.021
3.5	4.348	4.356	4.352	4.313	4.503	4.567	4.598	4.575	4.535	4.469	4.309	3.949	4.182	4.170	4.174
3.6	4.338	4.338	4.342	4.342	4.547	4.582	4.616	4.630	4.616	4.555	4.449	4.267	4.265	4.271	4.263
3.7	4.243	4.217	4.148	4.180	4.523	4.567	4.600	4.630	4.638	4.618	4.537	4.418	4.279	4.358	4.368
3.8	4.152	4.071	4.071	4.176	4.491	4.555	4.573	4.604	4.624	4.626	4.561	4.473	4.184	4.352	4.414
3.9	3.995	4.446	4.450	4.471	4.420	4.495	4.539	4.551	4.575	4.577	4.529	4.447	4.094	4.330	4.408
4.0	4.537	4.535	4.519	4.503	4.471	4.442	4.436	4.438	4.461	4.471	4.465	3.999	3.989	4.211	4.295
4.1	4.551	4.559	4.547	4.533	4.495	4.469	4.285	4.231	4.309	4.098	4.104	4.277	4.328	4.332	4.328
4.2	4.571	4.584	4.569	4.555	4.515	4.487	4.340	4.247	4.224	4.132	4.263	4.316	4.340	4.352	4.354
4.3	4.584	4.598	4.586	4.567	4.523	4.491	4.184	4.182	4.204	4.180	4.287	4.311	4.328	4.338	4.344
4.4	4.592	4.612	4.600	4.571	4.527	4.471	4.227	4.233	4.213	4.172	4.269	4.287	4.299	4.311	4.316
4.5	4.588	4.622	4.612	4.584	4.459	4.406	4.261	4.243	4.207	4.176	4.150	4.257	4.271	4.279	4.289
4.6	4.521	4.610	4.598	4.535	4.462	4.227	4.229	4.237	4.200	4.194	4.156	4.136	4.239	4.251	4.263
4.7	4.231	4.535	4.551	4.471	4.039	4.071	4.158	4.227	4.227	4.194	4.162	4.134	4.102	4.176	4.231
4.8	4.229	4.362	4.438	4.384	3.942	3.991	4.071	4.132	4.196	4.200	4.166	4.140	4.096	4.223	4.207
4.9	3.954	4.098	4.130	4.196	4.225	4.233	4.217	4.051	4.102	4.168	4.158	4.140	4.102	4.263	4.251
5.0	3.975	4.112	4.152	4.194	4.221	4.245	4.227	4.180	4.003	4.015	4.094	4.096	4.053	4.235	4.263
5.1	4.329	4.098	4.136	4.176	4.200	4.241	4.227	4.196	4.134	3.942	4.110	4.231	4.223	4.166	4.249
5.2	4.442	4.084	4.120	4.164	4.198	4.227	4.241	4.186	4.126	4.063	4.231	4.279	4.223	4.118	4.189
5.3	4.519	4.473	4.112	4.148	4.180	4.209	4.233	4.152	4.104	4.031	4.259	4.241	4.483	4.390	4.021
5.4	4.598	4.584	4.100	4.134	4.164	4.200	4.217	4.114	4.053	4.065	3.973	4.002	4.616	4.566	4.380
5.5	4.700	4.634	4.555	4.122	4.102	4.192	4.200	4.077	3.977	3.989	4.002	4.626	4.614	4.557	4.408
5.6	4.624	4.616	4.559	4.116	4.152	4.176	4.180	4.039	4.023	4.051	4.586	4.596	4.553	4.453	4.255
5.7	4.511	4.493	4.477	4.092	4.130	4.144	4.138	3.870	4.063	4.071	4.535	4.521	4.436	4.287	4.126
5.8	4.390	4.404	4.192	4.061	4.088	4.079	4.047	3.934	3.987	4.037	4.457	4.416	4.303	4.134	3.989
5.9	4.295	4.110	4.136	3.942	3.942	3.977	3.975	3.942	3.959	4.055	4.311	4.267	4.088	4.019	3.928

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 95.3	95.4	95.5	95.6	95.7	95.8	95.9	96.0	96.1	96.2	96.3	96.4	96.5	96.6	96.7
0.1	3.908	4.239	4.408	4.457	4.481	4.477	4.457	4.396	4.259	3.834	4.199	4.263	4.281	4.295	4.299
0.2	3.965	4.189	4.376	4.432	4.457	4.471	4.465	4.432	4.360	4.110	4.227	4.267	4.295	4.311	4.316
0.3	3.973	4.134	4.297	4.366	4.396	4.424	4.424	4.408	4.376	4.070	4.201	4.263	4.291	4.311	4.318
0.4	3.987	3.947	4.162	4.263	4.322	4.342	4.352	4.332	4.328	4.231	4.158	4.239	4.275	4.295	4.303
0.5	3.981	3.955	3.949	4.082	4.182	4.239	4.263	4.263	4.239	4.154	4.021	4.142	4.199	4.229	4.227
0.6	4.070	4.041	4.021	4.015	3.961	4.066	4.150	4.166	4.114	3.920	3.834	3.840	4.134	4.191	4.213
0.7	4.118	4.176	4.082	4.045	4.021	3.928	4.150	4.110	4.021	3.836	3.832	3.836	4.231	4.229	4.227
0.8	4.124	4.160	4.138	4.068	4.005	4.102	4.221	4.205	4.150	4.049	3.981	3.908	4.235	4.231	4.227
0.9	4.124	4.122	4.094	4.037	3.971	4.182	4.199	4.186	4.174	4.152	4.110	4.049	4.235	4.231	4.219
1.0	4.057	4.037	4.009	3.969	3.930	4.158	4.158	4.148	4.142	4.126	4.106	3.844	4.191	4.213	4.199
1.1	4.199	4.170	3.924	3.989	4.021	4.102	4.118	4.110	4.104	4.086	3.834	3.834	3.832	4.146	4.051
1.2	4.207	4.184	4.122	4.027	4.068	4.082	4.037	4.070	4.094	4.215	4.225	4.191	4.102	3.834	4.013
1.3	4.199	4.166	4.114	4.013	4.070	4.088	4.320	4.352	4.336	4.311	4.279	4.225	4.150	3.834	4.021
1.4	4.168	4.122	4.061	3.928	4.043	4.080	4.384	4.390	4.360	4.322	4.279	4.227	4.168	4.057	4.037
1.5	4.138	4.082	4.001	3.932	4.009	4.053	4.376	4.384	4.360	4.311	4.263	4.203	4.150	4.057	4.039
1.6	4.096	4.037	3.949	3.928	3.989	4.001	4.324	4.360	4.336	4.287	4.231	4.170	4.118	4.027	3.834
1.7	4.053	4.011	3.878	3.836	3.928	3.941	4.166	4.311	4.295	4.251	4.199	4.144	4.086	3.844	3.832
1.8	4.013	3.957	3.868	3.906	3.876	3.834	3.876	4.247	4.251	4.221	4.166	4.114	4.029	3.908	3.832
1.9	4.271	4.223	3.928	3.928	3.932	3.836	3.884	4.031	4.126	4.160	4.134	4.074	3.930	3.834	4.247
2.0	4.328	4.303	4.237	3.965	3.951	3.886	3.900	3.836	3.836	4.021	4.053	3.928	3.934	4.247	4.299
2.1	4.350	4.360	4.316	3.957	3.936	3.892	3.900	3.943	3.967	3.938	3.860	3.834	4.195	4.271	4.311
2.2	4.396	4.372	4.328	3.943	3.957	3.876	4.090	4.082	4.053	4.009	3.957	4.047	4.166	4.239	4.289
2.3	4.372	4.344	4.207	4.017	4.031	3.949	4.176	4.170	4.126	4.074	4.021	3.953	4.102	4.180	4.235
2.4	4.322	4.164	4.178	4.174	4.150	3.989	4.205	4.231	4.215	4.174	4.118	4.045	3.999	4.118	4.182
2.5	4.098	4.166	4.186	4.166	4.134	4.108	4.134	4.201	4.231	4.223	4.182	4.132	4.057	4.021	4.102
2.6	4.035	4.102	4.166	4.142	4.080	4.053	4.094	4.150	4.170	4.182	4.174	4.142	3.983	3.836	4.005
2.7	3.928	4.005	4.106	4.090	3.981	3.938	4.033	4.086	4.110	4.118	4.122	4.057	3.928	4.090	4.124
2.8	4.150	4.136	4.080	3.930	3.963	3.981	3.989	3.973	4.057	4.053	4.023	3.965	3.840	4.118	4.166
2.9	4.162	4.180	4.118	3.930	3.941	3.965	3.973	3.973	3.963	3.928	3.836	3.834	4.134	4.100	4.134
3.0	4.193	4.176	4.118	3.928	3.928	3.928	3.941	3.949	3.932	3.870	4.051	4.279	4.328	4.301	4.047
3.1	4.162	4.158	4.223	4.223	4.094	3.930	3.928	3.928	3.876	4.132	4.354	4.392	4.376	4.340	4.186
3.2	4.148	4.259	4.358	4.328	4.279	4.162	3.836	3.834	3.965	4.041	4.261	4.424	4.422	4.380	4.204
3.3	4.021	4.275	4.408	4.376	4.287	4.219	4.108	3.836	4.072	4.134	4.182	4.150	4.420	4.432	4.186
3.4	3.928	4.328	4.424	4.368	4.301	4.223	4.102	3.836	4.106	4.172	4.146	4.186	4.263	4.453	4.422
3.5	4.199	4.388	4.428	4.360	4.303	4.237	4.094	3.834	4.005	4.142	4.003	3.957	4.271	4.392	4.436
3.6	4.263	4.414	4.426	4.356	4.311	4.227	4.090	3.834	3.834	3.832	4.207	4.263	3.836	4.122	4.215
3.7	3.860	4.390	4.412	4.360	4.291	4.150	4.070	3.834	3.834	4.112	4.249	4.326	4.132	4.132	4.215
3.8	3.836	3.834	3.892	4.247	4.223	4.110	4.029	3.832	3.836	4.140	4.263	4.348	4.376	4.344	4.193
3.9	3.928	3.860	4.051	4.118	4.098	4.078	4.070	4.007	3.993	4.134	4.239	4.328	4.362	4.328	4.263
4.0	4.158	4.174	4.182	4.182	4.166	4.150	4.142	4.110	4.090	4.110	4.207	4.263	4.293	4.231	4.182
4.1	4.231	4.251	4.247	4.247	4.247	4.231	4.219	4.184	4.166	4.140	4.158	4.199	4.154	4.134	3.926
4.2	4.287	4.303	4.316	4.307	4.295	4.279	4.255	4.229	4.199	4.160	4.059	4.037	3.993	4.025	4.005
4.3	4.328	4.332	4.328	4.311	4.295	4.263	4.239	4.205	4.176	4.118	3.907	4.039	4.074	3.981	3.963
4.4	4.328	4.311	4.295	4.251	4.223	4.199	4.158	4.118	4.094	3.963	3.967	4.023	4.066	3.977	3.836
4.5	4.263	4.253	4.213	4.168	4.150	4.112	4.078	4.021	4.047	4.039	3.930	3.993	4.027	4.154	4.352
4.6	4.094	4.150	4.118	4.090	4.057	4.021	3.928	4.078	4.136	4.102	4.005	3.981	4.182	4.348	4.489
4.7	4.122	3.864	3.836	3.866	3.836	3.834	4.096	4.174	4.174	4.122	4.039	4.219	4.368	4.497	4.557
4.8	4.199	4.037	3.866	3.930	3.930	4.023	4.053	4.094	4.102	4.102	4.207	4.364	4.407	4.529	4.564
4.9	4.229	4.122	3.930	3.930	3.928	3.872	3.969	3.989	4.045	4.199	4.311	4.408	4.445	4.481	4.509
5.0	4.247	4.142	3.949	3.928	3.930	3.844	3.834	4.053	4.184	4.267	4.328	4.376	4.380	4.416	4.455
5.1	4.295	4.376	4.360	4.340	4.247	4.074	3.836	4.158	4.217	4.241	4.271	4.311	4.328	4.362	4.392
5.2	4.303	4.416	4.426	4.392	4.376	4.263	4.178	4.142	4.174	4.178	4.215	4.247	4.263	4.295	4.328
5.3	4.251	4.416	4.473	4.449	4.420	4.328	4.203	4.053	4.100	4.122	4.148	4.174	4.199	4.217	4.160
5.4	3.961	4.402	4.465	4.461	4.408	4.261	4.128	3.836	3.836	4.003	4.049	4.078	4.118	4.140	4.158
5.5	3.928	3.951	4.370	4.380	4.332	4.221	4.037	3.834	3.832	4.017	4.037	4.080	4.134	4.160	4.174
5.6	3.961	3.997	3.969	3.963	4.138	4.045	3.894	3.834	3.836	4.013	4.041	4.092	4.132	4.150	4.166
5.7	4.021	4.035	4.021	3.993	3.973	3.945	3.928	3.832	3.856	4.021	4.045	4.094	4.122	4.148	4.154
5.8	3.342	4.029	4.041	4.021	4.005	3.971	3.834	3.834	3.894	4.013	4.047	4.086	4.112	4.138	4.150
5.9	3.870	4.023	4.023	4.037	4.017	3.959	4.019	3.965	3.932	3.957	4.049	4.070	4.086	4.114	4.116

BED ELEVATIONS - ROUGHNESS 1

X COOR.	STATION 106.6	106.7	106.8	106.9	107.0	107.1	107.2	107.3	107.4	107.5	107.6	107.7	107.8	107.9	108.0
0.1	3.919	3.857	4.018	3.914	3.731	3.976	4.014	4.047	4.087	4.126	4.147	4.151	4.105	3.754	3.793
0.2	4.014	3.933	4.048	3.964	3.872	3.947	3.962	4.026	4.057	4.093	4.126	4.160	4.114	3.760	3.803
0.3	4.034	3.970	4.000	3.930	3.930	3.905	3.945	3.993	4.026	4.059	4.093	4.120	4.128	3.814	3.810
0.4	4.004	3.935	3.970	3.907	3.876	3.862	3.905	3.947	3.993	4.039	4.064	4.091	4.076	3.776	3.803
0.5	3.911	3.903	4.129	4.059	4.059	3.976	3.947	3.897	3.859	3.959	3.999	3.868	3.601	3.760	3.807
0.6	3.964	4.117	4.103	4.118	4.099	4.005	3.997	3.941	3.901	3.959	3.955	3.907	3.609	3.762	3.810
0.7	4.030	4.145	4.193	4.155	4.109	3.962	3.976	3.928	3.893	3.993	3.980	3.907	3.843	3.764	3.805
0.8	4.062	4.179	4.226	4.193	4.114	3.951	3.824	3.762	3.859	3.980	3.968	3.893	3.843	3.760	3.791
0.9	4.068	4.244	4.278	4.214	4.130	3.964	3.903	3.907	3.878	3.832	3.910	3.887	3.828	3.760	3.744
1.0	4.062	4.052	4.262	4.168	4.128	3.947	3.935	3.914	3.895	3.882	3.859	3.687	3.619	3.760	3.666
1.1	4.175	3.954	3.984	3.930	3.930	3.930	3.914	3.910	3.918	3.928	3.910	3.832	3.721	3.762	3.859
1.2	4.286	4.204	3.855	3.914	3.922	3.920	3.901	3.926	3.943	3.939	3.905	3.859	3.945	3.782	3.916
1.3	4.310	4.244	3.855	3.943	3.947	3.947	3.930	3.930	3.914	3.878	3.945	4.014	4.020	3.943	3.930
1.4	4.318	4.230	3.855	3.907	3.947	3.926	3.874	3.805	3.733	3.837	3.959	3.995	4.016	3.964	3.887
1.5	4.292	4.210	3.855	3.826	3.845	3.718	3.744	3.707	3.624	3.830	3.943	3.982	3.995	3.947	3.841
1.6	4.230	3.857	3.909	3.901	3.947	3.822	3.814	3.774	3.764	3.570	3.910	3.964	3.939	3.760	3.799
1.7	3.964	3.891	4.000	3.964	3.964	3.843	3.839	3.797	3.807	3.859	3.872	3.880	3.865	3.843	3.764
1.8	3.968	3.929	4.004	3.932	3.826	3.843	3.847	3.843	3.843	3.862	3.893	3.895	3.899	3.895	3.810
1.9	3.988	4.018	3.994	3.891	3.810	3.847	3.847	3.859	3.843	3.795	3.895	3.895	3.895	3.897	3.814
2.0	4.000	4.081	4.062	3.895	3.793	3.847	3.853	3.862	3.843	3.797	3.776	3.876	3.882	3.876	3.839
2.1	3.887	3.970	3.980	3.876	3.793	3.847	3.859	3.859	3.847	3.826	3.778	3.760	3.661	3.635	3.845
2.2	3.921	3.986	4.032	3.930	3.810	3.847	3.662	3.859	3.843	3.837	3.778	3.760	3.707	3.631	3.562
2.3	3.887	4.020	4.038	3.905	3.814	3.843	3.859	3.603	3.816	3.822	3.780	3.764	3.705	3.550	3.696
2.4	4.048	4.018	3.986	3.797	3.701	3.710	3.752	3.764	3.691	3.801	3.778	3.744	3.687	3.582	3.739
2.5	4.050	3.956	3.895	3.741	3.760	3.874	3.901	3.912	3.887	3.762	3.707	3.687	3.595	3.543	3.764
2.6	4.050	3.871	4.026	3.976	3.885	3.949	3.974	3.995	4.007	3.976	3.707	3.726	3.705	3.597	3.774
2.7	4.060	3.988	4.072	3.978	3.945	3.993	4.016	4.041	4.074	4.085	4.045	3.760	3.744	3.688	3.803
2.8	4.048	4.036	4.068	3.974	3.995	4.059	4.082	4.109	4.128	4.147	4.095	3.770	3.762	3.702	3.830
2.9	4.020	4.028	4.062	3.957	4.026	4.109	4.162	4.178	4.180	4.164	3.764	3.772	3.760	3.676	3.843
3.0	3.947	3.988	4.032	3.928	3.614	4.139	4.176	4.197	4.191	4.114	3.754	3.764	3.749	3.668	3.862
3.1	3.855	3.923	4.000	3.910	3.760	4.130	4.180	4.191	4.128	4.032	3.739	3.744	3.739	3.585	3.826
3.2	3.972	3.907	3.855	3.749	3.952	3.918	4.141	4.105	4.026	3.942	3.655	3.632	3.564	3.571	3.764
3.3	4.026	3.972	3.913	3.791	3.893	3.899	3.880	3.782	3.760	3.795	3.614	3.661	3.839	3.839	3.839
3.4	4.068	4.026	3.976	3.814	3.797	3.762	3.712	3.749	3.807	3.868	3.780	3.826	3.905	3.914	3.947
3.5	4.089	4.052	4.000	3.980	4.091	4.132	4.155	4.162	4.088	3.860	3.876	3.830	3.903	3.926	3.939
3.6	4.081	4.036	3.972	4.028	4.124	4.151	4.176	4.193	4.059	3.939	3.935	3.778	3.887	3.907	3.916
3.7	3.998	4.016	4.004	4.074	4.112	4.141	4.162	4.180	4.062	3.955	3.937	3.843	3.843	3.893	3.899
3.8	3.998	4.026	4.004	4.051	4.093	4.116	4.143	4.162	4.030	3.980	3.993	3.887	3.826	3.862	3.865
3.9	3.992	4.018	3.996	3.882	3.843	3.666	3.841	3.926	3.964	3.993	3.997	3.914	3.820	3.859	3.878
4.0	4.280	4.274	4.244	4.126	3.687	3.691	3.624	3.816	3.864	3.895	3.893	3.895	3.818	3.893	3.914
4.1	4.343	4.322	4.296	4.195	4.100	3.760	3.793	3.862	3.764	3.776	3.795	3.760	3.843	3.910	3.926
4.2	4.371	4.355	4.331	4.241	4.228	4.130	3.895	3.959	3.926	3.728	3.824	3.812	3.834	3.893	3.910
4.3	4.389	4.387	4.373	4.287	4.272	4.224	4.014	4.028	3.987	3.864	3.797	3.843	3.776	3.864	3.885
4.4	4.367	4.387	4.385	4.297	4.280	4.207	4.020	4.062	4.043	3.955	3.862	3.764	3.752	3.797	3.855
4.5	4.236	4.375	4.371	4.291	4.264	4.162	3.964	4.049	4.053	3.993	3.914	3.814	3.810	3.797	3.764
4.6	4.212	4.347	4.361	4.226	4.130	3.776	3.885	4.009	4.032	4.014	3.955	3.839	3.826	3.864	3.876
4.7	4.123	4.304	4.262	4.097	3.666	3.739	3.795	3.905	3.980	3.976	3.876	3.776	3.822	3.907	3.893
4.8	4.175	4.145	4.141	3.715	3.707	3.676	3.644	3.760	3.878	3.864	3.728	3.744	3.895	3.914	3.907
4.9	4.189	4.000	3.964	3.859	3.760	3.545	3.764	3.743	3.758	3.718	3.676	3.603	3.914	3.926	3.903
5.0	4.020	4.018	4.004	3.893	3.814	3.739	3.843	3.859	3.834	3.807	3.776	3.733	3.928	3.928	3.907
5.1	4.028	4.016	4.008	3.897	3.843	4.059	4.089	3.912	3.859	3.834	3.748	3.660	3.928	3.926	3.910
5.2	4.034	4.020	4.018	3.893	4.009	4.114	4.147	4.064	3.830	3.603	3.710	3.749	3.928	3.926	3.922
5.3	3.954	4.020	4.016	3.893	4.028	4.160	4.162	4.076	3.874	3.897	3.764	3.696	3.928	3.932	3.928
5.4	3.905	3.958	3.952	3.818	4.076	4.199	4.180	4.107	3.916	3.976	3.947	3.993	3.928	3.941	3.939
5.5	3.855	3.855	3.998	3.849	4.095	4.222	4.176	4.055	3.959	4.022	4.039	4.022	3.910	3.937	3.935
5.6	4.052	4.145	4.022	3.851	4.097	4.197	4.137	3.962	3.993	4.043	4.064	4.043	3.878	3.914	3.907
5.7	4.230	4.193	4.115	3.939	3.891	4.059	3.916	3.945	3.914	3.982	4.039	3.978	3.780	3.847	3.834
5.8	4.157	4.097	4.064	3.922	3.876	3.760	3.826	3.876	3.901	3.914	3.910	3.908	3.082	3.764	3.762
5.9	3.998	3.937	3.933	3.793	3.776	3.760	3.764	3.793	3.797	3.797	3.760	3.762	3.760	3.760	3.762

BED ELEVATIONS - ROUGHNESS 2

X COOR.	STATION 11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7
0.1	4.974	4.972	4.955	4.935	4.778	4.843	4.875	4.859	4.822	4.810	4.802	4.778	4.697	4.996	5.020
0.2	5.004	4.992	4.984	4.968	4.875	4.891	4.887	4.875	4.859	4.859	4.843	4.830	4.933	5.008	5.020
0.3	5.032	5.024	5.008	4.984	4.919	4.923	4.927	4.911	4.903	4.895	4.885	4.877	4.730	4.970	4.955
0.4	5.048	5.044	5.022	4.980	4.913	4.923	4.939	4.947	4.939	4.931	4.919	4.899	4.794	4.774	4.786
0.5	5.038	5.052	5.044	4.949	4.859	4.891	4.897	4.931	4.931	4.927	4.909	4.867	4.754	4.778	4.802
0.6	5.016	4.867	4.633	4.641	4.627	4.637	4.734	4.758	4.712	4.625	4.560	4.518	4.665	4.730	4.738
0.7	5.036	4.938	4.899	4.607	4.734	4.834	4.883	4.891	4.818	4.714	4.649	4.633	4.576	4.544	4.597
0.8	5.040	5.006	4.972	4.891	4.806	4.899	4.925	4.939	4.927	4.810	4.786	4.689	4.568	4.647	4.681
0.9	5.050	5.008	4.972	4.931	4.810	4.869	4.925	4.947	4.907	4.867	4.760	4.657	4.601	4.689	4.697
1.0	5.052	5.016	4.980	4.931	4.834	4.774	4.875	4.907	4.883	4.820	4.732	4.633	4.625	4.685	4.689
1.1	5.056	5.020	4.984	4.939	4.568	4.661	4.786	4.843	4.843	4.790	4.730	4.617	4.617	4.665	4.661
1.2	5.054	5.024	4.988	4.665	4.633	4.734	4.697	4.758	4.867	4.885	4.883	4.798	4.597	4.629	4.617
1.3	4.887	4.951	4.923	4.871	4.790	4.730	4.748	4.891	4.923	4.907	4.919	4.923	4.548	4.582	4.752
1.4	4.774	4.580	4.929	4.947	4.947	4.947	4.931	4.734	4.923	4.923	4.923	4.943	4.947	4.520	4.794
1.5	4.697	4.552	4.891	4.927	4.933	4.931	4.925	4.635	4.927	4.925	4.939	4.957	4.972	4.972	4.794
1.6	5.004	5.024	4.937	4.871	4.907	4.907	4.907	4.597	4.955	4.951	4.972	4.980	4.992	4.996	4.794
1.7	5.028	5.006	5.004	4.972	4.629	4.738	4.660	4.702	4.931	4.988	4.984	4.992	5.008	5.016	5.010
1.8	4.964	4.968	4.962	4.927	4.851	4.818	4.778	4.939	4.972	4.996	5.036	5.028	5.028	5.026	4.949
1.9	4.923	4.923	4.903	4.859	4.923	4.853	4.802	5.020	5.024	4.984	5.004	5.008	4.927	4.818	4.576
2.0	4.834	4.818	4.790	5.008	5.012	4.947	4.988	5.028	5.012	4.964	4.568	4.566	4.593	4.597	4.504
2.1	4.843	4.826	4.788	4.996	5.020	4.974	5.028	5.020	4.976	4.933	4.839	4.502	4.532	4.593	4.859
2.2	4.863	4.843	4.818	4.939	4.968	5.020	5.028	5.004	4.955	4.919	4.730	4.742	4.657	4.697	4.859
2.3	4.855	4.841	4.812	4.851	4.968	5.036	5.024	4.988	4.951	4.875	4.790	4.782	4.665	4.818	4.875
2.4	4.843	4.818	4.788	4.830	5.036	5.036	5.028	4.996	4.939	4.794	4.810	4.810	4.649	4.834	4.907
2.5	4.818	4.790	4.568	5.052	5.048	5.044	5.036	4.984	4.790	4.812	4.820	4.816	4.625	4.863	4.923
2.6	4.754	4.552	5.032	5.060	5.040	5.032	5.010	4.794	4.816	4.839	4.851	4.826	4.564	4.826	4.891
2.7	4.599	4.843	5.030	5.036	5.016	4.996	4.591	4.830	4.843	4.859	4.867	4.843	4.480	4.810	4.859
2.8	4.665	4.649	4.734	4.786	4.818	4.826	4.480	4.867	4.861	4.855	4.834	4.794	4.673	4.796	4.867
2.9	4.705	4.697	4.681	4.665	4.931	4.955	4.899	4.839	4.802	4.689	4.746	4.738	4.714	4.794	4.853
3.0	4.697	4.871	4.875	4.962	4.996	4.996	4.540	4.568	4.800	4.675	4.754	4.754	4.726	4.689	4.647
3.1	4.617	4.891	4.931	4.959	4.931	4.931	4.863	4.867	4.927	4.893	4.746	4.754	4.728	4.681	4.633
3.2	4.730	4.859	4.907	4.895	4.798	4.915	4.921	4.927	4.929	4.927	4.931	4.746	4.718	4.679	4.623
3.3	4.770	4.754	4.730	4.536	4.730	4.887	4.955	4.972	4.988	4.996	4.984	4.955	4.675	4.625	4.639
3.4	4.808	4.774	4.937	4.734	4.758	4.754	4.907	4.964	5.008	5.012	4.974	4.931	4.766	4.667	4.657
3.5	4.818	5.032	5.044	5.030	4.980	4.754	4.730	4.867	4.939	4.996	4.955	4.891	4.806	4.794	4.667
3.6	4.984	5.052	5.089	5.097	5.064	4.746	4.714	4.736	4.822	4.826	4.826	4.818	4.818	4.810	4.806
3.7	4.750	5.032	5.052	5.093	5.052	4.939	4.705	4.826	4.847	4.843	4.830	4.824	4.826	4.810	4.816
3.8	4.665	5.004	5.036	5.046	4.988	4.927	4.689	4.826	4.843	4.855	4.849	4.834	4.824	4.826	4.826
3.9	4.689	4.947	4.996	4.984	4.899	4.786	4.834	4.778	4.832	4.851	4.857	4.843	4.843	4.855	4.834
4.0	4.730	4.734	4.911	4.899	4.867	4.901	4.879	4.814	4.657	4.786	4.816	4.834	4.857	4.847	4.326
4.1	4.750	4.754	4.738	4.826	4.891	4.907	4.899	4.855	4.641	4.764	4.834	4.834	4.802	4.415	4.542
4.2	4.790	4.790	4.774	4.796	4.867	4.907	4.907	4.867	4.714	4.806	4.859	4.834	4.810	4.504	4.625
4.3	4.610	4.794	4.746	4.643	4.792	4.895	4.834	4.625	4.750	4.818	4.834	4.810	4.754	4.879	4.907
4.4	4.762	4.693	4.633	4.568	4.639	4.714	4.657	4.601	4.730	4.834	4.748	4.730	4.625	4.907	4.927
4.5	4.754	4.774	4.714	4.629	4.695	4.693	4.625	4.657	4.709	4.744	4.702	4.754	4.695	4.925	4.931
4.6	4.746	4.738	4.730	4.633	4.665	4.649	4.730	4.693	4.730	4.810	4.810	4.788	4.665	4.929	4.933
4.7	4.552	4.734	4.714	4.716	4.681	4.625	4.673	4.722	4.750	4.794	4.822	4.794	4.697	4.859	4.935
4.8	4.736	4.302	4.786	4.774	4.738	4.697	4.593	4.697	4.748	4.770	4.794	4.794	4.730	4.732	4.899
4.9	4.774	4.826	4.834	4.826	4.790	4.730	4.617	4.544	4.736	4.774	4.770	4.764	4.730	4.778	4.834
5.0	4.818	4.851	4.877	4.859	4.802	4.730	4.609	4.730	4.826	4.863	4.828	4.627	4.762	4.816	4.867
5.1	4.369	4.879	4.871	4.867	4.794	4.673	4.766	4.834	4.877	4.939	4.911	4.834	4.762	4.859	4.907
5.2	4.869	4.867	4.899	4.861	4.778	4.758	4.839	4.899	4.955	4.960	4.947	4.859	4.619	4.512	4.877
5.3	4.879	4.867	4.895	4.591	4.740	4.849	4.907	4.972	5.008	5.020	4.955	4.881	4.808	4.478	4.512
5.4	4.522	4.526	4.494	4.802	4.867	4.931	4.955	5.012	5.060	5.052	4.972	4.907	4.834	4.520	4.508
5.5	4.897	4.931	4.897	4.839	4.899	4.955	5.004	5.052	5.080	5.080	5.020	4.947	4.883	4.794	4.464
5.6	4.395	4.959	4.947	4.818	4.897	4.951	5.006	5.048	5.068	5.076	5.052	4.996	4.897	4.697	4.609
5.7	4.887	4.955	4.955	4.762	4.762	4.859	4.931	4.978	5.004	5.006	4.998	4.972	4.887	4.738	4.697
5.8	4.869	4.955	4.935	4.758	4.552	4.633	4.754	4.818	4.859	4.871	4.875	4.855	4.649	4.762	4.732
5.9	4.887	4.935	4.699	4.732	4.552	4.544	4.754	4.689	4.601	4.689	4.665	4.762	4.699	4.750	4.738

BED ELEVATIONS - ROUGHNESS 2

X COOR.	STATION 23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7
0.1	4.686	4.696	4.680	4.648	4.565	4.465	4.490	4.510	4.510	4.613	4.627	4.631	4.617	4.579	4.510
0.2	4.656	4.650	4.615	4.670	4.684	4.613	4.498	4.510	4.563	4.672	4.720	4.716	4.648	4.573	4.708
0.3	4.735	4.725	4.688	4.637	4.635	4.603	4.482	4.469	4.571	4.640	4.737	4.704	4.605	4.514	4.741
0.4	4.745	4.729	4.714	4.672	4.575	4.692	4.559	4.465	4.680	4.812	4.769	4.660	4.451	4.465	4.623
0.5	4.745	4.745	4.714	4.672	4.575	4.692	4.640	4.455	4.785	4.803	4.725	4.769	4.779	4.745	4.627
0.6	4.550	4.729	4.720	4.662	4.660	4.826	4.858	4.895	4.919	4.575	4.729	4.818	4.803	4.743	4.640
0.7	4.522	4.593	4.595	4.816	4.874	4.929	4.963	4.980	4.984	4.951	4.911	4.826	4.801	4.733	4.656
0.8	4.486	4.605	4.789	4.870	4.984	5.002	4.992	4.984	5.002	4.984	4.919	4.822	4.785	4.723	4.627
0.9	4.893	4.605	4.927	4.980	5.012	5.008	4.992	4.992	4.998	4.978	4.905	4.806	4.749	4.672	4.595
1.0	4.955	4.943	5.004	5.004	5.004	4.996	4.984	4.984	4.967	4.949	4.767	4.773	4.692	4.627	4.753
1.1	4.963	4.963	4.688	4.988	4.960	4.978	4.967	4.959	4.935	4.903	4.716	4.692	4.642	4.546	4.862
1.2	4.963	4.959	4.858	4.996	4.974	4.957	4.935	4.929	4.915	4.850	4.635	4.644	4.563	4.393	4.834
1.3	4.963	4.955	4.850	4.854	4.947	4.939	4.935	4.915	4.496	4.524	4.465	4.451	4.563	4.640	4.727
1.4	4.957	4.951	4.915	4.801	4.640	4.611	4.595	4.542	4.492	4.530	4.498	4.591	4.672	4.660	4.652
1.5	4.953	4.947	4.895	4.834	4.631	4.575	4.498	4.678	4.433	4.542	4.534	4.506	4.652	4.652	4.961
1.6	4.945	4.939	4.854	4.729	4.619	4.745	4.789	4.757	4.708	4.482	4.476	4.364	4.627	4.931	4.984
1.7	4.891	4.785	4.745	4.629	4.599	4.769	4.830	4.822	4.769	4.666	4.577	4.635	4.854	4.913	4.976
1.8	4.785	4.785	4.729	4.482	4.476	4.727	4.826	4.838	4.797	4.688	4.640	4.656	4.854	4.862	4.943
1.9	4.779	4.745	4.664	4.526	4.498	4.611	4.806	4.822	4.773	4.559	4.652	4.668	4.850	4.850	4.886
2.0	4.801	4.773	4.725	4.522	4.522	4.530	4.729	4.765	4.749	4.787	4.793	4.656	4.818	4.830	4.878
2.1	4.943	4.907	4.870	4.785	4.544	4.538	4.725	4.749	4.761	4.789	4.806	4.688	4.615	4.789	4.866
2.2	4.996	4.976	4.947	4.903	4.793	4.696	4.733	4.753	4.771	4.797	4.801	4.741	4.603	4.587	4.735
2.3	5.012	4.996	4.959	4.927	4.882	4.708	4.729	4.749	4.773	4.795	4.799	4.757	4.591	4.567	4.797
2.4	5.004	4.988	4.947	4.913	4.886	4.704	4.733	4.753	4.767	4.797	4.810	4.559	4.579	4.559	4.806
2.5	4.972	4.955	4.935	4.913	4.834	4.522	4.559	4.579	4.605	4.591	4.563	4.508	4.528	4.395	4.749
2.6	4.891	4.891	4.895	4.838	4.656	4.563	4.579	4.607	4.579	4.899	4.951	4.933	4.886	4.854	4.678
2.7	4.753	4.739	4.858	4.846	4.654	4.625	4.601	4.595	4.850	4.976	5.016	4.992	4.957	4.915	4.818
2.8	4.931	4.921	4.895	4.872	4.623	4.607	4.565	4.621	4.939	5.022	5.028	5.012	4.980	4.925	4.834
2.9	4.957	4.929	4.915	4.927	4.870	4.557	4.733	4.735	4.996	5.016	5.016	4.994	4.947	4.886	4.787
3.0	4.959	4.931	4.923	4.919	4.534	4.542	4.749	4.729	4.943	4.982	4.959	4.945	4.895	4.830	4.739
3.1	4.965	4.939	4.929	4.830	4.532	4.579	4.605	4.664	4.595	4.904	4.905	4.882	4.832	4.773	4.640
3.2	4.972	4.927	4.765	4.741	4.536	4.846	4.838	4.595	4.550	4.575	4.818	4.822	4.771	4.725	4.753
3.3	4.854	4.672	4.664	4.753	4.878	4.911	4.899	4.862	4.822	4.769	4.623	4.635	4.668	4.769	4.785
3.4	4.733	4.737	4.708	4.725	4.905	4.917	4.882	4.846	4.806	4.773	4.615	4.482	4.627	4.785	4.814
3.5	4.745	4.739	4.672	4.613	4.919	4.931	4.899	4.864	4.801	4.741	4.587	4.506	4.474	4.561	4.838
3.6	4.939	4.884	4.623	4.510	4.923	4.931	4.923	4.911	4.870	4.822	4.783	4.741	4.676	4.575	4.686
3.7	5.026	5.044	5.018	4.729	4.935	4.903	4.963	4.919	4.872	4.808	4.769	4.729	4.822	4.870	4.902
3.8	5.028	5.069	5.093	4.982	4.862	4.893	4.915	4.886	4.838	4.781	4.886	4.925	4.919	4.903	4.725
3.9	5.028	5.069	5.103	5.077	4.899	4.668	4.725	4.741	4.753	4.822	4.899	4.911	4.886	4.862	4.830
4.0	5.006	5.052	5.079	5.044	4.725	4.765	4.797	4.793	4.664	4.838	4.862	4.854	4.834	4.818	4.769
4.1	4.761	4.919	4.617	4.684	4.725	4.765	4.806	4.806	4.688	4.363	4.814	4.806	4.789	4.773	4.737
4.2	4.812	4.759	4.627	4.682	4.723	4.761	4.801	4.806	4.692	4.559	4.486	4.520	4.729	4.698	4.646
4.3	4.874	4.810	4.629	4.682	4.725	4.765	4.781	4.769	4.692	4.579	4.504	4.735	4.542	4.672	4.718
4.4	4.899	4.785	4.621	4.680	4.720	4.729	4.725	4.672	4.640	4.670	4.765	4.785	4.542	4.785	4.836
4.5	4.640	4.729	4.605	4.656	4.676	4.660	4.623	4.591	4.559	4.676	4.725	4.785	4.743	4.850	4.848
4.6	4.729	4.785	4.749	4.542	4.591	4.575	4.554	4.530	4.498	4.635	4.684	4.769	4.789	4.846	4.846
4.7	4.785	4.789	4.745	4.640	4.431	4.652	4.799	4.935	4.967	4.972	4.947	4.789	4.814	4.862	4.850
4.8	4.777	4.769	4.692	4.599	4.623	4.773	4.897	4.967	5.004	5.000	4.982	4.895	4.836	4.872	4.868
4.9	4.745	4.696	4.599	4.518	4.698	4.832	4.925	4.982	5.012	5.004	4.978	4.886	4.765	4.803	4.830
5.0	4.729	4.615	4.540	4.486	4.676	4.820	4.903	4.967	5.002	4.980	4.941	4.800	4.613	4.644	4.702
5.1	4.607	4.656	4.765	4.799	4.753	4.787	4.870	4.935	4.955	4.929	4.884	4.785	4.623	4.635	4.640
5.2	4.631	4.729	4.801	4.801	4.777	4.688	4.743	4.858	4.878	4.834	4.801	4.534	4.619	4.644	4.652
5.3	4.664	4.749	4.801	4.777	4.753	4.678	4.579	4.542	4.692	4.729	4.789	4.729	4.563	4.633	4.648
5.4	4.478	4.729	4.769	4.769	4.741	4.660	4.627	4.526	4.692	4.854	4.893	4.640	4.469	4.575	4.603
5.5	4.619	4.591	4.710	4.749	4.716	4.627	4.646	4.727	4.854	4.935	4.931	4.870	4.627	4.660	4.696
5.6	4.729	4.674	4.631	4.563	4.627	4.654	4.670	4.878	4.963	4.967	4.943	4.895	4.670	4.708	4.769
5.7	4.745	4.704	4.656	4.579	4.627	4.670	4.822	4.963	4.990	4.967	4.931	4.850	4.725	4.757	4.814
5.8	4.672	4.631	4.589	4.559	4.571	4.546	4.848	4.907	4.984	4.951	4.909	4.729	4.753	4.785	4.818
5.9	4.559	4.591	4.567	4.563	4.563	4.526	4.587	4.945	4.951	4.919	4.668	4.720	4.704	4.727	4.757

BED ELEVATIONS - ROUGHNESS 2

X COOR.	STATION 35.3	35.4	35.5	35.6	35.7	35.8	35.9	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7
0.1	4.586	4.598	4.638	4.703	4.632	4.606	4.667	4.679	4.683	4.687	4.695	4.667	4.671	4.396	4.626
0.2	4.574	4.606	4.649	4.679	4.557	4.626	4.665	4.681	4.687	4.693	4.693	4.693	4.687	4.598	4.610
0.3	4.468	4.505	4.634	4.651	4.412	4.630	4.663	4.675	4.685	4.687	4.669	4.687	4.687	4.598	4.622
0.4	4.602	4.626	4.647	4.663	4.412	4.598	4.651	4.671	4.679	4.683	4.687	4.677	4.564	4.804	4.784
0.5	4.598	4.624	4.655	4.659	4.655	4.493	4.574	4.634	4.655	4.649	4.675	4.679	4.817	4.873	4.898
0.6	4.598	4.618	4.630	4.655	4.614	4.541	4.566	4.549	4.501	4.634	4.683	4.683	4.831	4.883	4.912
0.7	4.594	4.610	4.614	4.600	4.509	4.541	4.727	4.549	4.517	4.598	4.638	4.671	4.770	4.825	4.867
0.8	4.687	4.434	4.541	4.551	4.665	4.802	4.833	4.829	4.808	4.744	4.034	4.602	4.719	4.764	4.835
0.9	4.703	4.647	4.521	4.545	4.817	4.847	4.871	4.889	4.873	4.857	4.800	4.566	4.651	4.740	4.784
1.0	4.703	4.606	4.541	4.470	4.833	4.865	4.861	4.900	4.906	4.889	4.843	4.760	4.592	4.679	4.719
1.1	4.659	4.493	4.549	4.574	4.808	4.865	4.873	4.885	4.898	4.893	4.851	4.736	4.535	4.614	4.667
1.2	4.665	4.651	4.634	4.566	4.719	4.819	4.825	4.833	4.837	4.849	4.819	4.671	4.444	4.509	4.566
1.3	4.776	4.744	4.736	4.695	4.466	4.501	4.768	4.768	4.776	4.780	4.760	4.602	4.410	4.442	4.452
1.4	4.800	4.780	4.758	4.727	4.655	4.503	4.638	4.566	4.687	4.638	4.671	4.703	4.727	4.719	4.610
1.5	4.784	4.768	4.738	4.687	4.598	4.501	4.667	4.667	4.614	4.549	4.721	4.740	4.760	4.778	4.796
1.6	4.744	4.730	4.699	4.622	4.503	4.521	4.693	4.677	4.638	4.719	4.746	4.766	4.784	4.804	4.829
1.7	4.687	4.679	4.630	4.539	4.460	4.586	4.667	4.663	4.630	4.748	4.770	4.790	4.808	4.833	4.855
1.8	4.606	4.574	4.533	4.436	4.614	4.602	4.566	4.602	4.719	4.774	4.802	4.819	4.841	4.865	4.887
1.9	4.481	4.387	4.543	4.618	4.667	4.748	4.663	4.679	4.774	4.800	4.831	4.851	4.873	4.889	4.906
2.0	4.667	4.444	4.598	4.651	4.699	4.784	4.776	4.723	4.786	4.825	4.857	4.881	4.898	4.916	4.914
2.1	4.719	4.541	4.606	4.651	4.715	4.808	4.833	4.655	4.760	4.808	4.849	4.889	4.914	4.922	4.887
2.2	4.725	4.719	4.622	4.667	4.732	4.817	4.877	4.748	4.493	4.485	4.695	4.780	4.841	4.881	4.806
2.3	4.727	4.719	4.653	4.683	4.748	4.841	4.869	4.841	4.578	4.485	4.493	4.557	4.574	4.572	4.570
2.4	4.732	4.709	4.649	4.651	4.744	4.738	4.725	4.725	4.667	4.727	4.788	4.537	4.574	4.574	4.574
2.5	4.732	4.693	4.416	4.331	4.675	4.752	4.768	4.796	4.837	4.857	4.879	4.853	4.541	4.574	4.570
2.6	4.719	4.440	4.424	4.742	4.794	4.833	4.805	4.877	4.893	4.898	4.889	4.839	4.525	4.537	4.525
2.7	4.404	4.440	4.410	4.817	4.801	4.881	4.893	4.896	4.890	4.889	4.879	4.833	4.468	4.468	4.679
2.8	4.711	4.422	4.396	4.833	4.871	4.881	4.881	4.873	4.859	4.849	4.833	4.817	4.505	4.501	4.543
2.9	4.768	4.764	4.505	4.813	4.853	4.865	4.849	4.833	4.815	4.796	4.776	4.760	4.495	4.501	4.468
3.0	4.768	4.766	4.764	4.744	4.800	4.817	4.810	4.764	4.736	4.703	4.727	4.630	4.452	4.462	4.428
3.1	4.772	4.764	4.758	4.748	4.719	4.725	4.725	4.800	4.829	4.808	4.774	4.509	4.436	4.436	4.420
3.2	4.760	4.752	4.740	4.732	4.719	4.758	4.831	4.845	4.841	4.833	4.825	4.810	4.719	4.396	4.379
3.3	4.723	4.738	4.723	4.723	4.521	4.780	4.839	4.845	4.833	4.821	4.813	4.802	4.784	4.586	4.655
3.4	4.517	4.703	4.541	4.521	4.503	4.768	4.817	4.831	4.817	4.808	4.796	4.792	4.784	4.687	4.655
3.5	4.541	4.574	4.574	4.541	4.545	4.738	4.758	4.768	4.796	4.796	4.786	4.780	4.768	4.566	4.602
3.6	4.634	4.614	4.610	4.582	4.590	4.606	4.723	4.719	4.732	4.756	4.768	4.758	4.719	4.501	4.509
3.7	4.632	4.649	4.655	4.630	4.630	4.647	4.588	4.687	4.721	4.725	4.721	4.533	4.574	4.440	4.396
3.8	4.614	4.622	4.655	4.679	4.671	4.647	4.825	4.849	4.841	4.821	4.748	4.572	4.574	4.541	4.590
3.9	4.561	4.574	4.638	4.667	4.810	4.857	4.877	4.881	4.877	4.863	4.833	4.529	4.525	4.517	4.634
4.0	4.756	4.744	4.638	4.730	4.833	4.881	4.898	4.906	4.902	4.893	4.873	4.808	4.485	4.468	4.598
4.1	4.768	4.770	4.719	4.754	4.833	4.893	4.914	4.926	4.922	4.914	4.889	4.843	4.444	4.515	4.499
4.2	4.756	4.778	4.754	4.796	4.865	4.914	4.938	4.940	4.938	4.926	4.896	4.835	4.559	4.600	4.533
4.3	4.748	4.768	4.778	4.833	4.865	4.944	4.938	4.946	4.944	4.930	4.889	4.825	4.622	4.655	4.622
4.4	4.752	4.772	4.780	4.841	4.902	4.922	4.930	4.938	4.932	4.910	4.873	4.784	4.636	4.703	4.655
4.5	4.748	4.760	4.744	4.833	4.881	4.879	4.861	4.889	4.861	4.855	4.815	4.630	4.703	4.725	4.669
4.6	4.460	4.533	4.600	4.644	4.796	4.780	4.764	4.764	4.748	4.732	4.523	4.673	4.776	4.736	4.695
4.7	4.404	4.640	4.521	4.580	4.590	4.525	4.622	4.723	4.699	4.655	4.545	4.732	4.796	4.752	4.705
4.8	4.695	4.687	4.557	4.495	4.537	4.568	4.679	4.723	4.703	4.675	4.566	4.748	4.778	4.780	4.711
4.9	4.689	4.671	4.553	4.331	4.396	4.636	4.742	4.719	4.697	4.671	4.539	4.695	4.768	4.752	4.727
5.0	4.699	4.683	4.622	4.363	4.428	4.732	4.758	4.719	4.703	4.663	4.428	4.671	4.703	4.734	4.798
5.1	4.695	4.671	4.638	4.440	4.539	4.744	4.754	4.687	4.703	4.667	4.509	4.515	4.699	4.788	4.833
5.2	4.683	4.647	4.632	4.525	4.590	4.590	4.566	4.501	4.590	4.525	4.533	4.525	4.772	4.817	4.881
5.3	4.663	4.622	4.606	4.523	4.594	4.667	4.687	4.626	4.525	4.537	4.541	4.539	4.800	4.865	4.930
5.4	4.493	4.493	4.493	4.485	4.551	4.638	4.703	4.723	4.539	4.541	4.549	4.549	4.752	4.877	4.938
5.5	4.808	4.800	4.651	4.539	4.509	4.590	4.663	4.610	4.549	4.551	4.557	4.557	4.545	4.606	4.881
5.6	4.784	4.788	4.786	4.557	4.549	4.472	4.590	4.509	4.549	4.557	4.553	4.549	4.509	4.570	4.614
5.7	4.750	4.704	4.776	4.541	4.557	4.474	4.363	4.400	4.517	4.533	4.541	4.521	4.444	4.541	4.602
5.8	4.723	4.721	4.734	4.476	4.402	4.396	4.493	4.404	4.361	4.428	4.460	4.387	4.412	4.489	4.541
5.9	4.703	4.721	4.719	4.363	4.363	4.511	4.541	4.557	4.553	4.509	4.396	4.428	4.420	4.383	4.466

BED ELEVATIONS - ROUGHNESS 2

X COOR.	STATION 41.3	41.4	41.5	41.6	41.7	41.8	41.9	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7
0.1	4.819	4.800	4.659	4.450	4.430	4.677	4.653	4.598	4.525	4.361	4.454	4.661	4.721	4.725	4.725
0.2	4.851	4.835	4.774	4.578	4.701	4.701	4.661	4.620	4.570	4.361	4.527	4.634	4.721	4.721	4.721
0.3	4.875	4.851	4.774	4.566	4.764	4.717	4.669	4.620	4.566	4.436	4.691	4.709	4.697	4.693	4.697
0.4	4.883	4.804	4.725	4.693	4.819	4.725	4.677	4.614	4.566	4.436	4.669	4.689	4.693	4.689	4.685
0.5	4.841	4.772	4.638	4.800	4.849	4.804	4.725	4.661	4.535	4.436	4.630	4.661	4.677	4.673	4.673
0.6	4.304	4.732	4.598	4.827	4.855	4.817	4.772	4.655	4.440	4.519	4.598	4.638	4.647	4.653	4.655
0.7	4.764	4.699	4.616	4.859	4.851	4.812	4.758	4.600	4.553	4.594	4.580	4.606	4.624	4.630	4.626
0.8	4.630	4.472	4.675	4.851	4.843	4.810	4.756	4.547	4.553	4.630	4.644	4.630	4.614	4.393	4.371
0.9	4.566	4.533	4.677	4.819	4.819	4.772	4.691	4.497	4.499	4.614	4.665	4.665	4.665	4.653	4.369
1.0	4.578	4.553	4.519	4.622	4.758	4.701	4.592	4.460	4.487	4.535	4.661	4.713	4.715	4.701	4.371
1.1	4.574	4.551	4.509	4.483	4.452	4.479	4.551	4.574	4.566	4.549	4.586	4.689	4.665	4.653	4.653
1.2	4.551	4.519	4.517	4.478	4.452	4.521	4.566	4.614	4.638	4.638	4.630	4.598	4.479	4.622	4.677
1.3	4.543	4.519	4.503	4.383	4.452	4.503	4.564	4.614	4.661	4.699	4.713	4.719	4.689	4.644	4.669
1.4	4.535	4.515	4.294	4.345	4.606	4.501	4.559	4.616	4.661	4.709	4.740	4.752	4.756	4.620	4.649
1.5	4.590	4.495	4.237	4.653	4.715	4.685	4.511	4.622	4.661	4.707	4.740	4.756	4.756	4.531	4.614
1.6	4.661	4.622	4.278	4.705	4.734	4.732	4.638	4.468	4.653	4.693	4.717	4.663	4.630	4.584	4.535
1.7	4.691	4.693	4.266	4.715	4.736	4.740	4.693	4.468	4.630	4.511	4.622	4.677	4.687	4.622	4.582
1.8	4.725	4.725	4.679	4.709	4.728	4.740	4.715	4.649	4.681	4.606	4.701	4.736	4.780	4.756	4.606
1.9	4.732	4.732	4.701	4.701	4.725	4.748	4.717	4.657	4.679	4.685	4.756	4.796	4.804	4.760	4.665
2.0	4.728	4.732	4.685	4.697	4.728	4.756	4.723	4.649	4.677	4.685	4.796	4.847	4.827	4.778	4.693
2.1	4.725	4.723	4.614	4.691	4.740	4.758	4.717	4.626	4.677	4.685	4.758	4.847	4.851	4.804	4.661
2.2	4.701	4.644	4.353	4.693	4.748	4.736	4.701	4.614	4.665	4.416	4.470	4.535	4.780	4.701	4.503
2.3	4.424	4.416	4.430	4.671	4.742	4.740	4.551	4.559	4.570	4.517	4.460	4.507	4.578	4.566	4.551
2.4	4.460	4.487	4.525	4.535	4.685	4.653	4.570	4.606	4.598	4.547	4.472	4.543	4.511	4.553	4.566
2.5	4.485	4.515	4.559	4.566	4.543	4.428	4.564	4.582	4.566	4.572	4.693	4.732	4.717	4.610	4.499
2.6	4.521	4.551	4.582	4.582	4.543	4.400	4.545	4.574	4.594	4.717	4.762	4.796	4.804	4.693	4.566
2.7	4.547	4.574	4.592	4.562	4.596	4.661	4.677	4.677	4.598	4.734	4.788	4.831	4.859	4.851	4.626
2.8	4.549	4.578	4.566	4.551	4.624	4.677	4.693	4.699	4.669	4.742	4.804	4.847	4.883	4.895	4.873
2.9	4.349	4.511	4.383	4.408	4.598	4.638	4.677	4.673	4.693	4.756	4.817	4.863	4.906	4.914	4.908
3.0	4.557	4.590	4.606	4.590	4.578	4.620	4.638	4.604	4.713	4.774	4.829	4.879	4.930	4.942	4.918
3.1	4.614	4.630	4.645	4.638	4.630	4.551	4.535	4.503	4.717	4.788	4.843	4.898	4.934	4.946	4.926
3.2	4.701	4.669	4.653	4.638	4.638	4.398	4.400	4.436	4.693	4.788	4.839	4.881	4.883	4.920	4.883
3.3	4.756	4.748	4.645	4.638	4.770	4.819	4.760	4.551	4.545	4.754	4.819	4.847	4.788	4.808	4.790
3.4	4.736	4.732	4.705	4.693	4.843	4.891	4.900	4.812	4.565	4.521	4.448	4.424	4.454	4.529	4.543
3.5	4.713	4.701	4.693	4.539	4.817	4.891	4.910	4.902	4.869	4.511	4.495	4.529	4.448	4.535	4.535
3.6	4.689	4.683	4.669	4.626	4.705	4.800	4.855	4.875	4.867	4.788	4.472	4.531	4.527	4.551	4.503
3.7	4.638	4.622	4.598	4.551	4.645	4.709	4.760	4.819	4.831	4.776	4.424	4.476	4.594	4.582	4.574
3.8	4.649	4.630	4.582	4.476	4.584	4.645	4.701	4.762	4.776	4.685	4.377	4.446	4.626	4.610	4.590
3.9	4.630	4.618	4.598	4.503	4.472	4.598	4.644	4.693	4.693	4.418	4.404	4.547	4.649	4.642	4.614
4.0	4.622	4.614	4.574	4.470	4.472	4.598	4.614	4.604	4.594	4.582	4.483	4.499	4.669	4.669	4.644
4.1	4.604	4.582	4.543	4.353	4.472	4.632	4.630	4.618	4.612	4.598	4.551	4.535	4.677	4.689	4.665
4.2	4.661	4.740	4.835	4.851	4.819	4.651	4.653	4.645	4.630	4.598	4.543	4.440	4.659	4.693	4.679
4.3	4.895	4.883	4.867	4.379	4.859	4.642	4.661	4.661	4.620	4.539	4.557	4.614	4.562	4.479	4.590
4.4	4.871	4.363	4.851	4.851	4.835	4.551	4.598	4.614	4.804	4.776	4.701	4.649	4.588	4.511	4.448
4.5	4.843	4.827	4.817	4.819	4.788	4.582	4.474	4.889	4.875	4.815	4.756	4.691	4.626	4.574	4.468
4.6	4.835	4.796	4.772	4.752	4.598	4.614	4.756	4.922	4.914	4.851	4.780	4.721	4.661	4.701	4.833
4.7	4.819	4.788	4.709	4.476	4.547	4.507	4.533	4.883	4.910	4.867	4.800	4.740	4.669	4.831	4.861
4.8	4.756	4.701	4.564	4.456	4.645	4.543	4.543	4.772	4.900	4.863	4.817	4.752	4.831	4.851	4.879
4.9	4.663	4.661	4.642	4.594	4.634	4.564	4.562	4.709	4.819	4.863	4.784	4.815	4.847	4.875	4.902
5.0	4.669	4.677	4.653	4.624	4.598	4.586	4.590	4.574	4.740	4.440	4.808	4.835	4.873	4.902	4.922
5.1	4.638	4.661	4.649	4.606	4.460	4.590	4.610	4.598	4.444	4.424	4.823	4.863	4.898	4.930	4.950
5.2	4.717	4.725	4.723	4.452	4.402	4.566	4.562	4.564	4.478	4.483	4.847	4.883	4.918	4.942	4.946
5.3	4.804	4.839	4.819	4.788	4.491	4.402	4.479	4.620	4.555	4.472	4.702	4.835	4.887	4.883	4.833
5.4	4.883	4.898	4.863	4.851	4.541	4.535	4.594	4.645	4.645	4.487	4.446	4.693	4.713	4.630	4.683
5.5	4.930	4.920	4.895	4.863	4.543	4.622	4.626	4.582	4.614	4.551	4.592	4.606	4.614	4.598	4.683
5.6	4.946	4.912	4.861	4.819	4.590	4.638	4.630	4.590	4.549	4.576	4.602	4.628	4.649	4.601	4.614
5.7	4.928	4.883	4.827	4.562	4.616	4.620	4.614	4.551	4.501	4.502	4.606	4.628	4.601	4.675	4.669
5.8	4.885	4.843	4.574	4.568	4.614	4.614	4.606	4.535	4.478	4.582	4.608	4.623	4.601	4.677	4.673
5.9	4.841	4.814	4.574	4.503	4.568	4.610	4.527	4.438	4.416	4.566	4.604	4.630	4.661	4.673	4.669

BED ELEVATIONS - ROUGHNESS 2

X COOR.	STATION 47.3	47.4	47.5	47.6	47.7	47.8	47.9	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7
0.1	4.706	4.750	4.811	4.795	4.485	4.204	4.442	4.495	4.544	4.580	4.588	4.576	4.542	4.248	4.463
0.2	4.722	4.758	4.782	4.740	4.657	4.220	4.426	4.491	4.527	4.576	4.592	4.584	4.558	4.540	4.511
0.3	4.697	4.722	4.639	4.552	4.446	4.199	4.337	4.422	4.519	4.560	4.588	4.588	4.562	4.542	4.523
0.4	4.623	4.560	4.495	4.604	4.592	4.546	4.365	4.367	4.483	4.540	4.572	4.602	4.578	4.525	4.511
0.5	4.507	4.434	4.610	4.649	4.633	4.600	4.560	4.293	4.438	4.507	4.564	4.602	4.560	4.491	4.438
0.6	4.420	4.596	4.651	4.665	4.641	4.618	4.576	4.295	4.303	4.463	4.540	4.584	4.540	4.479	4.527
0.7	4.538	4.598	4.667	4.665	4.649	4.625	4.596	4.289	4.301	4.295	4.380	4.535	4.511	4.430	4.527
0.8	4.588	4.533	4.669	4.669	4.657	4.639	4.608	4.246	4.303	4.297	4.434	4.475	4.450	4.398	4.471
0.9	4.641	4.560	4.671	4.673	4.665	4.653	4.623	4.201	4.303	4.469	4.507	4.523	4.521	4.463	4.428
1.0	4.697	4.433	4.669	4.677	4.641	4.669	4.637	4.572	4.552	4.491	4.544	4.508	4.519	4.469	4.264
1.1	4.706	4.475	4.669	4.677	4.665	4.681	4.651	4.623	4.584	4.519	4.556	4.584	4.410	4.313	4.297
1.2	4.669	4.475	4.667	4.687	4.689	4.689	4.653	4.641	4.608	4.550	4.589	4.378	4.463	4.495	4.471
1.3	4.479	4.463	4.629	4.685	4.691	4.685	4.637	4.588	4.598	4.552	4.475	4.370	4.515	4.544	4.507
1.4	4.556	4.544	4.560	4.665	4.667	4.657	4.602	4.578	4.641	4.610	4.584	4.527	4.479	4.527	4.505
1.5	4.618	4.608	4.394	4.556	4.552	4.580	4.515	4.633	4.661	4.641	4.621	4.584	4.511	4.430	4.600
1.6	4.683	4.629	4.394	4.337	4.343	4.481	4.540	4.649	4.669	4.637	4.612	4.560	4.495	4.461	4.523
1.7	4.685	4.548	4.394	4.343	4.341	4.507	4.560	4.653	4.681	4.637	4.588	4.521	4.507	4.535	4.491
1.8	4.655	4.333	4.365	4.394	4.430	4.513	4.570	4.641	4.673	4.621	4.560	4.505	4.558	4.572	4.576
1.9	4.578	4.335	4.382	4.414	4.380	4.511	4.572	4.618	4.663	4.608	4.550	4.503	4.568	4.588	4.602
2.0	4.507	4.333	4.390	4.426	4.394	4.463	4.527	4.576	4.430	4.444	4.430	4.511	4.558	4.584	4.600
2.1	4.398	4.349	4.398	4.665	4.657	4.357	4.305	4.402	4.446	4.475	4.503	4.540	4.562	4.562	4.584
2.2	4.398	4.463	4.718	4.728	4.704	4.629	4.305	4.394	4.442	4.463	4.410	4.483	4.511	4.544	4.558
2.3	4.378	4.669	4.738	4.738	4.722	4.625	4.560	4.479	4.448	4.335	4.414	4.448	4.491	4.517	4.531
2.4	4.378	4.675	4.742	4.746	4.726	4.641	4.576	4.459	4.438	4.535	4.540	4.540	4.446	4.475	4.491
2.5	4.378	4.681	4.742	4.746	4.726	4.629	4.574	4.430	4.533	4.556	4.574	4.584	4.372	4.335	4.301
2.6	4.378	4.673	4.742	4.754	4.722	4.621	4.562	4.554	4.600	4.608	4.608	4.365	4.327	4.327	4.301
2.7	4.378	4.661	4.722	4.738	4.722	4.596	4.540	4.592	4.621	4.621	4.639	4.633	4.347	4.313	4.360
2.8	4.378	4.471	4.673	4.693	4.661	4.576	4.521	4.608	4.621	4.637	4.657	4.665	4.317	4.301	4.576
2.9	4.374	4.349	4.507	4.527	4.552	4.535	4.450	4.612	4.625	4.641	4.665	4.657	4.406	4.343	4.540
3.0	4.612	4.623	4.604	4.535	4.475	4.240	4.337	4.596	4.637	4.604	4.495	4.471	4.463	4.450	4.382
3.1	4.653	4.665	4.625	4.572	4.511	4.414	4.317	4.280	4.361	4.414	4.481	4.481	4.471	4.457	4.390
3.2	4.673	4.671	4.641	4.604	4.531	4.426	4.487	4.487	4.365	4.382	4.491	4.491	4.483	4.465	4.434
3.3	4.677	4.657	4.641	4.586	4.491	4.503	4.513	4.505	4.438	4.430	4.495	4.507	4.489	4.479	4.440
3.4	4.665	4.623	4.560	4.438	4.475	4.519	4.503	4.483	4.430	4.430	4.505	4.523	4.414	4.365	4.392
3.5	4.608	4.544	4.442	4.390	4.515	4.527	4.515	4.459	4.414	4.491	4.738	4.750	4.754	4.738	4.450
3.6	4.548	4.426	4.289	4.428	4.509	4.527	4.519	4.625	4.726	4.746	4.754	4.766	4.766	4.754	4.738
3.7	4.402	4.284	4.289	4.339	4.481	4.507	4.610	4.655	4.750	4.762	4.768	4.772	4.770	4.760	4.748
3.8	4.414	4.284	4.361	4.412	4.446	4.430	4.629	4.665	4.754	4.762	4.766	4.766	4.766	4.756	4.742
3.9	4.475	4.337	4.388	4.434	4.455	4.463	4.633	4.683	4.742	4.738	4.738	4.738	4.734	4.722	4.724
4.0	4.511	4.398	4.382	4.442	4.459	4.446	4.616	4.671	4.669	4.665	4.568	4.414	4.505	4.538	4.544
4.1	4.542	4.438	4.363	4.442	4.465	4.517	4.511	4.398	4.531	4.487	4.422	4.349	4.505	4.588	4.596
4.2	4.550	4.493	4.337	4.414	4.467	4.495	4.503	4.461	4.586	4.556	4.503	4.440	4.511	4.612	4.618
4.3	4.511	4.463	4.301	4.363	4.428	4.473	4.471	4.592	4.633	4.600	4.560	4.495	4.495	4.600	4.627
4.4	4.394	4.361	4.341	4.394	4.398	4.353	4.511	4.616	4.588	4.552	4.511	4.479	4.361	4.550	4.625
4.5	4.671	4.410	4.408	4.398	4.446	4.426	4.479	4.625	4.625	4.430	4.394	4.341	4.347	4.540	4.592
4.6	4.726	4.394	4.394	4.418	4.446	4.424	4.701	4.754	4.754	4.724	4.641	4.272	4.380	4.483	4.576
4.7	4.724	4.398	4.394	4.426	4.459	4.659	4.754	4.797	4.791	4.756	4.722	4.671	4.625	4.422	4.495
4.8	4.701	4.414	4.402	4.442	4.463	4.685	4.764	4.803	4.803	4.758	4.738	4.738	4.738	4.689	4.459
4.9	4.657	4.418	4.414	4.552	4.426	4.637	4.730	4.799	4.811	4.778	4.756	4.750	4.770	4.750	4.724
5.0	4.578	4.406	4.600	4.621	4.592	4.525	4.669	4.754	4.807	4.795	4.778	4.770	4.795	4.778	4.726
5.1	4.378	4.544	4.592	4.637	4.633	4.556	4.584	4.730	4.787	4.803	4.799	4.803	4.803	4.782	4.726
5.2	4.487	4.491	4.553	4.623	4.647	4.594	4.390	4.645	4.754	4.789	4.809	4.815	4.807	4.766	4.726
5.3	4.576	4.394	4.511	4.588	4.635	4.610	4.420	4.430	4.651	4.730	4.776	4.797	4.782	4.732	4.641
5.4	4.576	4.398	4.426	4.746	4.734	4.730	4.432	4.430	4.606	4.535	4.704	4.722	4.706	4.724	4.540
5.5	4.572	4.762	4.799	4.809	4.782	4.776	4.746	4.430	4.566	4.610	4.570	4.531	4.489	4.459	4.503
5.6	4.734	4.815	4.829	4.831	4.817	4.782	4.766	4.740	4.600	4.657	4.625	4.564	4.544	4.475	4.548
5.7	4.778	4.835	4.835	4.831	4.819	4.782	4.754	4.726	4.576	4.665	4.673	4.645	4.600	4.531	4.592
5.8	4.811	4.845	4.847	4.859	4.789	4.787	4.744	4.722	4.576	4.669	4.683	4.637	4.568	4.503	4.608
5.9	4.309	4.847	4.861	4.863	4.809	4.766	4.750	4.560	4.572	4.657	4.621	4.544	4.463	4.473	4.576

BED ELEVATIONS - ROUGHNESS 2

X COOR.	STATION 53.3	53.4	53.5	53.6	53.7	53.8	53.9	54.0	54.1	54.2	54.3	54.4	54.5	54.6	54.7
0.1	4.485	4.485	4.485	4.477	4.262	4.423	4.439	4.509	4.539	4.527	4.461	4.326	4.465	4.485	4.495
0.2	4.483	4.489	4.489	4.477	4.413	4.443	4.479	4.519	4.577	4.609	4.465	4.497	4.509	4.519	4.541
0.3	4.487	4.493	4.489	4.481	4.421	4.469	4.517	4.565	4.607	4.630	4.469	4.521	4.549	4.565	4.581
0.4	4.481	4.469	4.493	4.489	4.421	4.475	4.519	4.591	4.636	4.622	4.499	4.541	4.573	4.597	4.613
0.5	4.481	4.487	4.469	4.252	4.260	4.461	4.533	4.597	4.638	4.620	4.485	4.344	4.545	4.581	4.587
0.6	4.477	4.373	4.332	4.188	4.405	4.469	4.549	4.413	4.344	4.533	4.324	4.340	4.332	4.316	4.348
0.7	4.340	4.212	4.236	4.236	4.477	4.581	4.589	4.589	4.421	4.282	4.322	4.338	4.334	4.320	4.344
0.8	4.375	4.212	4.316	4.276	4.533	4.605	4.603	4.605	4.611	4.485	4.308	4.326	4.324	4.308	4.210
0.9	4.387	4.405	4.336	4.318	4.553	4.626	4.617	4.613	4.613	4.622	4.577	4.306	4.322	4.300	4.214
1.0	4.340	4.405	4.340	4.310	4.609	4.646	4.638	4.626	4.626	4.630	4.626	4.509	4.296	4.284	4.244
1.1	4.306	4.360	4.128	4.212	4.379	4.640	4.646	4.642	4.632	4.630	4.634	4.561	4.469	4.340	4.373
1.2	4.597	4.615	4.605	4.525	4.377	4.624	4.654	4.652	4.646	4.636	4.638	4.611	4.505	4.427	4.401
1.3	4.630	4.654	4.646	4.585	4.493	4.340	4.638	4.662	4.662	4.644	4.640	4.630	4.549	4.465	4.487
1.4	4.652	4.674	4.658	4.531	4.577	4.509	4.417	4.662	4.670	4.660	4.646	4.638	4.589	4.469	4.497
1.5	4.606	4.678	4.620	4.481	4.595	4.605	4.581	4.605	4.662	4.658	4.648	4.630	4.533	4.445	4.499
1.6	4.672	4.670	4.541	4.583	4.609	4.620	4.007	4.605	4.581	4.613	4.605	4.244	4.232	4.385	4.451
1.7	4.670	4.615	4.473	4.605	4.620	4.622	4.622	4.622	4.605	4.328	4.276	4.244	4.232	4.344	4.589
1.8	4.658	4.539	4.565	4.597	4.622	4.613	4.609	4.517	4.577	4.537	4.383	4.244	4.232	4.581	4.613
1.9	4.630	4.477	4.531	4.583	4.581	4.549	4.493	4.595	4.630	4.654	4.630	4.581	4.477	4.589	4.599
2.0	4.591	4.425	4.340	4.324	4.387	4.409	4.507	4.565	4.595	4.638	4.648	4.571	4.453	4.589	4.597
2.1	4.549	4.417	4.409	4.501	4.212	4.228	4.509	4.527	4.549	4.575	4.609	4.541	4.364	4.585	4.587
2.2	4.356	4.453	4.517	4.555	4.519	4.373	4.493	4.517	4.531	4.543	4.559	4.517	4.346	4.569	4.579
2.3	4.348	4.511	4.565	4.557	4.517	4.469	4.401	4.501	4.517	4.525	4.533	4.501	4.362	4.571	4.565
2.4	4.429	4.543	4.565	4.545	4.515	4.477	4.421	4.437	4.477	4.469	4.501	4.467	4.373	4.557	4.561
2.5	4.356	4.541	4.549	4.527	4.501	4.469	4.413	4.146	4.212	4.268	4.443	4.433	4.332	4.501	4.529
2.6	4.346	4.525	4.523	4.501	4.469	4.453	4.391	4.148	4.212	4.344	4.346	4.389	4.435	4.348	4.409
2.7	4.471	4.503	4.503	4.483	4.445	4.429	4.362	4.196	4.212	4.264	4.379	4.453	4.477	4.469	4.342
2.8	4.509	4.477	4.477	4.437	4.413	4.379	4.342	4.188	4.228	4.212	4.397	4.437	4.501	4.493	4.431
2.9	4.573	4.407	4.437	4.397	4.407	4.451	4.471	4.407	4.276	4.222	4.358	4.455	4.471	4.475	4.419
3.0	4.539	4.302	4.284	4.212	4.445	4.485	4.483	4.443	4.381	4.308	4.292	4.348	4.421	4.409	4.389
3.1	4.308	4.364	4.348	4.304	4.443	4.469	4.455	4.421	4.389	4.354	4.316	4.284	4.389	4.485	4.459
3.2	4.393	4.389	4.373	4.340	4.429	4.453	4.437	4.401	4.364	4.332	4.453	4.497	4.557	4.545	4.511
3.3	4.401	4.389	4.375	4.348	4.405	4.443	4.421	4.387	4.348	4.316	4.597	4.622	4.609	4.581	4.549
3.4	4.401	4.389	4.373	4.338	4.266	4.425	4.405	4.368	4.352	4.300	4.603	4.630	4.622	4.599	4.577
3.5	4.397	4.381	4.348	4.340	4.260	4.389	4.377	4.348	4.316	4.276	4.581	4.622	4.622	4.613	4.597
3.6	4.381	4.533	4.662	4.652	4.549	4.300	4.340	4.316	4.228	4.254	4.346	4.605	4.615	4.613	4.605
3.7	4.632	4.662	4.670	4.670	4.630	4.188	4.196	4.381	4.344	4.276	4.344	4.593	4.613	4.622	4.605
3.8	4.642	4.646	4.646	4.654	4.646	4.352	4.445	4.455	4.349	4.300	4.352	4.573	4.617	4.622	4.581
3.9	4.615	4.626	4.636	4.638	4.613	4.525	4.453	4.449	4.373	4.276	4.326	4.541	4.613	4.622	4.405
4.0	4.593	4.605	4.620	4.613	4.613	4.557	4.373	4.413	4.352	4.260	4.276	4.324	4.453	4.605	4.626
4.1	4.565	4.583	4.597	4.605	4.597	4.557	4.403	4.445	4.401	4.485	4.087	4.276	4.547	4.630	4.640
4.2	4.509	4.573	4.591	4.597	4.589	4.525	4.421	4.509	4.523	4.529	4.539	4.105	4.533	4.605	4.630
4.3	4.389	4.537	4.581	4.587	4.581	4.511	4.407	4.541	4.561	4.573	4.557	4.567	4.493	4.603	4.642
4.4	4.499	4.539	4.525	4.561	4.567	4.485	4.469	4.519	4.565	4.601	4.597	4.605	4.389	4.501	4.626
4.5	4.527	4.593	4.549	4.557	4.549	4.449	4.501	4.597	4.613	4.613	4.605	4.615	4.344	4.413	4.533
4.6	4.553	4.615	4.630	4.565	4.469	4.421	4.533	4.581	4.622	4.626	4.630	4.533	4.210	4.377	4.467
4.7	4.497	4.607	4.630	4.489	4.364	4.272	4.523	4.575	4.605	4.630	4.636	4.549	4.208	4.232	4.344
4.8	4.541	4.565	4.541	4.397	4.260	4.272	4.360	4.537	4.559	4.605	4.613	4.541	4.212	4.421	4.501
4.9	4.549	4.308	4.469	4.421	4.399	4.348	4.260	4.258	4.453	4.533	4.537	4.258	4.485	4.605	4.563
5.0	4.503	4.501	4.521	4.501	4.469	4.429	4.373	4.260	4.535	4.573	4.244	4.493	4.607	4.630	4.581
5.1	4.593	4.597	4.581	4.549	4.517	4.477	4.421	4.389	4.565	4.605	4.630	4.638	4.517	4.620	4.597
5.2	4.662	4.650	4.628	4.593	4.555	4.517	4.453	4.455	4.533	4.581	4.628	4.654	4.630	4.557	4.553
5.3	4.702	4.692	4.662	4.630	4.589	4.549	4.497	4.429	4.505	4.549	4.597	4.638	4.638	4.597	4.533
5.4	4.726	4.718	4.694	4.662	4.630	4.585	4.517	4.429	4.401	4.517	4.565	4.597	4.630	4.589	4.469
5.5	4.728	4.734	4.722	4.690	4.658	4.611	4.531	4.421	4.366	4.485	4.519	4.557	4.577	4.485	4.292
5.6	4.726	4.734	4.732	4.710	4.670	4.605	4.509	4.387	4.429	4.433	4.401	4.304	4.344	4.212	4.348
5.7	4.682	4.726	4.726	4.702	4.644	4.421	4.453	4.485	4.499	4.409	4.417	4.377	4.346	4.421	4.425
5.8	4.630	4.726	4.710	4.668	4.501	4.425	4.493	4.489	4.509	4.497	4.441	4.413	4.445	4.475	4.413
5.9	4.597	4.674	4.658	4.605	4.501	4.409	4.395	4.429	4.433	4.487	4.469	4.437	4.356	4.411	4.381

BED ELEVATIONS - ROUGHNESS 2

X COOR.	STATION 59.3	59.4	59.5	59.6	59.7	59.8	59.9	60.0	60.1	60.2	60.3	60.4	60.5	60.6	60.7
0.1	4.544	4.496	4.423	4.306	4.484	4.423	4.355	4.294	4.302	4.318	4.298	4.189	4.431	4.464	4.447
0.2	4.534	4.494	4.435	4.363	4.512	4.472	4.367	4.310	4.359	4.375	4.351	4.391	4.439	4.451	4.460
0.3	4.512	4.464	4.401	4.464	4.528	4.504	4.427	4.318	4.363	4.399	4.379	4.375	4.419	4.439	4.464
0.4	4.504	4.439	4.367	4.445	4.528	4.512	4.445	4.318	4.365	4.415	4.377	4.286	4.399	4.427	4.464
0.5	4.494	4.423	4.339	4.411	4.470	4.544	4.570	4.560	4.369	4.419	4.391	4.288	4.205	4.415	4.476
0.6	4.488	4.415	4.447	4.504	4.544	4.568	4.589	4.601	4.585	4.383	4.351	4.464	4.407	4.238	4.472
0.7	4.439	4.177	4.534	4.560	4.564	4.597	4.617	4.625	4.617	4.524	4.455	4.524	4.528	4.544	4.439
0.8	4.203	4.214	4.570	4.589	4.601	4.617	4.627	4.641	4.633	4.560	4.510	4.544	4.556	4.560	4.544
0.9	4.254	4.286	4.580	4.597	4.617	4.625	4.633	4.653	4.623	4.504	4.532	4.568	4.576	4.578	4.585
1.0	4.266	4.300	4.589	4.609	4.621	4.639	4.647	4.665	4.649	4.246	4.552	4.593	4.611	4.589	4.593
1.1	4.286	4.326	4.583	4.605	4.621	4.637	4.605	4.449	4.260	4.230	4.197	4.601	4.599	4.578	4.576
1.2	4.294	4.351	4.383	4.544	4.556	4.462	4.472	4.488	4.472	4.205	4.141	4.205	4.341	4.347	4.230
1.3	4.218	4.270	4.343	4.201	4.399	4.464	4.480	4.496	4.500	4.205	4.133	4.343	4.371	4.411	4.391
1.4	4.439	4.423	4.171	4.203	4.419	4.464	4.488	4.504	4.514	4.512	4.133	4.347	4.373	4.417	4.431
1.5	4.576	4.538	4.423	4.201	4.431	4.455	4.480	4.512	4.526	4.536	4.141	4.343	4.383	4.425	4.439
1.6	4.625	4.613	4.512	4.419	4.383	4.455	4.488	4.518	4.528	4.542	4.528	4.341	4.395	4.472	4.455
1.7	4.633	4.649	4.585	4.496	4.335	4.425	4.464	4.500	4.536	4.550	4.528	4.341	4.431	4.470	4.472
1.8	4.641	4.657	4.653	4.593	4.476	4.343	4.423	4.488	4.520	4.514	4.504	4.367	4.423	4.460	4.455
1.9	4.635	4.657	4.643	4.613	4.536	4.302	4.302	4.377	4.439	4.480	4.441	4.072	4.355	4.427	4.365
2.0	4.613	4.633	4.625	4.597	4.508	4.308	4.335	4.359	4.355	4.181	4.288	4.367	4.357	4.399	4.439
2.1	4.580	4.609	4.603	4.576	4.480	4.294	4.318	4.351	4.351	4.306	4.399	4.423	4.437	4.464	4.484
2.2	4.546	4.564	4.552	4.532	4.252	4.516	4.310	4.330	4.335	4.403	4.431	4.453	4.480	4.492	4.504
2.3	4.508	4.508	4.486	4.367	4.343	4.556	4.574	4.500	4.341	4.423	4.447	4.474	4.496	4.506	4.520
2.4	4.435	4.419	4.312	4.347	4.409	4.556	4.568	4.528	4.480	4.431	4.462	4.486	4.496	4.514	4.528
2.5	4.554	4.558	4.532	4.427	4.480	4.540	4.554	4.540	4.488	4.415	4.408	4.492	4.504	4.512	4.520
2.6	4.637	4.605	4.566	4.524	4.429	4.466	4.496	4.484	4.439	4.367	4.439	4.464	4.439	4.435	4.464
2.7	4.643	4.609	4.568	4.528	4.484	4.367	4.407	4.423	4.504	4.528	4.536	4.441	4.181	4.149	4.284
2.8	4.641	4.601	4.560	4.520	4.480	4.431	4.339	4.512	4.576	4.560	4.560	4.408	4.183	4.149	4.480
2.9	4.635	4.593	4.554	4.514	4.472	4.431	4.480	4.558	4.617	4.593	4.597	4.480	4.181	4.496	4.536
3.0	4.623	4.576	4.544	4.512	4.468	4.429	4.524	4.593	4.633	4.633	4.601	4.512	4.498	4.552	4.550
3.1	4.589	4.544	4.512	4.496	4.464	4.423	4.560	4.617	4.633	4.595	4.556	4.504	4.564	4.568	4.544
3.2	4.512	4.464	4.451	4.447	4.425	4.383	4.568	4.617	4.625	4.560	4.512	4.576	4.585	4.564	4.528
3.3	4.480	4.512	4.494	4.470	4.431	4.383	4.278	4.589	4.576	4.534	4.576	4.603	4.591	4.556	4.520
3.4	4.552	4.542	4.524	4.504	4.480	4.455	4.431	4.238	4.276	4.528	4.599	4.611	4.589	4.552	4.512
3.5	4.583	4.576	4.566	4.528	4.502	4.482	4.455	4.383	4.278	4.447	4.544	4.585	4.576	4.544	4.504
3.6	4.609	4.609	4.593	4.568	4.536	4.496	4.472	4.379	4.278	4.205	4.254	4.337	4.455	4.524	4.455
3.7	4.625	4.621	4.601	4.574	4.542	4.508	4.472	4.147	4.278	4.560	4.558	4.335	4.337	4.393	4.532
3.8	4.625	4.621	4.593	4.552	4.508	4.464	4.425	4.423	4.609	4.649	4.637	4.576	4.343	4.568	4.593
3.9	4.609	4.601	4.542	4.494	4.419	4.387	4.504	4.625	4.679	4.677	4.601	4.631	4.528	4.607	4.603
4.0	4.520	4.520	4.447	4.403	4.359	4.605	4.679	4.722	4.714	4.697	4.665	4.627	4.568	4.611	4.605
4.1	4.407	4.415	4.355	4.544	4.524	4.669	4.738	4.738	4.722	4.701	4.669	4.633	4.556	4.609	4.601
4.2	4.568	4.544	4.609	4.607	4.560	4.697	4.740	4.740	4.722	4.695	4.665	4.609	4.544	4.603	4.593
4.3	4.593	4.464	4.621	4.617	4.580	4.439	4.740	4.734	4.718	4.687	4.657	4.506	4.339	4.528	4.585
4.4	4.625	4.443	4.597	4.613	4.566	4.395	4.722	4.730	4.705	4.685	4.625	4.375	4.375	4.189	4.564
4.5	4.623	4.411	4.544	4.589	4.520	4.381	4.615	4.722	4.703	4.665	4.312	4.415	4.399	4.205	4.250
4.6	4.609	4.367	4.488	4.520	4.494	4.512	4.254	4.627	4.617	4.562	4.320	4.367	4.404	4.437	4.449
4.7	4.613	4.258	4.476	4.536	4.560	4.556	4.512	4.250	4.365	4.472	4.276	4.399	4.496	4.516	4.492
4.8	4.512	4.524	4.568	4.576	4.589	4.593	4.542	4.395	4.520	4.552	4.556	4.496	4.464	4.506	4.492
4.9	4.343	4.552	4.593	4.609	4.609	4.593	4.528	4.468	4.558	4.585	4.576	4.528	4.383	4.455	4.464
5.0	4.226	4.536	4.570	4.580	4.580	4.522	4.415	4.437	4.472	4.484	4.502	4.496	4.341	4.385	4.415
5.1	4.445	4.447	4.496	4.500	4.431	4.455	4.464	4.427	4.335	4.347	4.341	4.339	4.298	4.318	4.341
5.2	4.438	4.488	4.355	4.504	4.512	4.528	4.528	4.524	4.508	4.431	4.330	4.339	4.290	4.246	4.419
5.3	4.408	4.462	4.542	4.570	4.578	4.576	4.576	4.576	4.576	4.572	4.528	4.205	4.181	4.205	4.544
5.4	4.387	4.365	4.593	4.625	4.633	4.641	4.641	4.641	4.641	4.641	4.617	4.205	4.193	4.427	4.568
5.5	4.431	4.544	4.647	4.689	4.663	4.697	4.722	4.705	4.722	4.697	4.677	4.593	4.205	4.512	4.572
5.6	4.496	4.447	4.681	4.722	4.728	4.740	4.758	4.768	4.760	4.738	4.726	4.637	4.498	4.576	4.562
5.7	4.480	4.423	4.625	4.730	4.740	4.754	4.774	4.764	4.766	4.740	4.691	4.601	4.560	4.589	4.540
5.8	4.455	4.343	4.524	4.669	4.722	4.728	4.740	4.730	4.697	4.637	4.563	4.530	4.556	4.556	4.524
5.9	4.302	4.335	4.278	4.351	4.399	4.361	4.689	4.689	4.570	4.516	4.472	4.464	4.496	4.496	4.476

BED ELEVATIONS - ROUGHNESS 2

X COOR.	STATION 65.3	65.4	65.5	65.6	65.7	65.8	65.9	66.0	66.1	66.2	66.3	66.4	66.5	66.6	66.7
0.1	4.427	4.413	4.417	4.395	4.383	4.365	4.205	4.137	4.117	4.087	4.399	4.447	4.466	4.478	4.431
0.2	4.460	4.492	4.492	4.474	4.439	4.383	4.343	4.151	4.125	4.415	4.464	4.506	4.528	4.534	4.506
0.3	4.413	4.423	4.458	4.460	4.431	4.391	4.375	4.304	4.415	4.476	4.508	4.542	4.564	4.508	4.544
0.4	4.157	4.341	4.343	4.564	4.560	4.512	4.250	4.173	4.404	4.508	4.542	4.564	4.576	4.572	4.556
0.5	4.205	4.189	4.605	4.619	4.605	4.554	4.488	4.173	4.476	4.516	4.544	4.560	4.572	4.558	4.528
0.6	4.337	4.520	4.593	4.609	4.603	4.560	4.480	4.343	4.447	4.502	4.526	4.540	4.544	4.514	4.427
0.7	4.339	4.504	4.538	4.544	4.544	4.512	4.405	4.121	4.363	4.441	4.447	4.466	4.447	4.405	4.345
0.8	4.415	4.464	4.480	4.480	4.462	4.413	4.214	4.151	4.240	4.383	4.464	4.488	4.464	4.411	4.302
0.9	4.341	4.411	4.431	4.419	4.379	4.302	4.205	4.167	4.343	4.411	4.490	4.518	4.508	4.447	4.345
1.0	4.270	4.306	4.347	4.304	4.137	4.367	4.359	4.270	4.373	4.415	4.472	4.524	4.528	4.482	4.383
1.1	4.316	4.296	4.216	4.133	4.343	4.395	4.367	4.270	4.365	4.423	4.464	4.524	4.542	4.508	4.427
1.2	4.318	4.314	4.367	4.474	4.476	4.472	4.447	4.250	4.391	4.447	4.472	4.520	4.542	4.526	4.460
1.3	4.318	4.320	4.512	4.540	4.540	4.532	4.520	4.460	4.399	4.458	4.474	4.494	4.518	4.520	4.462
1.4	4.318	4.528	4.565	4.605	4.601	4.593	4.560	4.516	4.447	4.439	4.464	4.464	4.476	4.476	4.201
1.5	4.326	4.524	4.611	4.649	4.657	4.647	4.607	4.536	4.447	4.187	4.439	4.460	4.439	4.189	4.203
1.6	4.324	4.464	4.599	4.641	4.665	4.637	4.572	4.504	4.169	4.167	4.341	4.460	4.494	4.496	4.510
1.7	4.294	4.343	4.506	4.619	4.639	4.576	4.464	4.335	4.169	4.262	4.445	4.496	4.528	4.542	4.544
1.8	4.234	4.119	4.415	4.556	4.585	4.522	4.405	4.427	4.447	4.375	4.462	4.512	4.556	4.560	4.564
1.9	4.544	4.203	4.266	4.464	4.470	4.435	4.435	4.447	4.472	4.415	4.464	4.512	4.558	4.572	4.572
2.0	4.558	4.544	4.528	4.274	4.262	4.404	4.496	4.522	4.512	4.476	4.415	4.480	4.528	4.548	4.556
2.1	4.556	4.546	4.532	4.254	4.246	4.480	4.524	4.556	4.576	4.522	4.341	4.254	4.254	4.377	4.492
2.2	4.554	4.544	4.528	4.234	4.232	4.492	4.538	4.580	4.621	4.574	4.470	4.270	4.270	4.492	4.506
2.3	4.552	4.540	4.524	4.337	4.341	4.492	4.544	4.601	4.625	4.607	4.522	4.250	4.544	4.589	4.572
2.4	4.528	4.526	4.363	4.373	4.351	4.395	4.522	4.587	4.613	4.589	4.520	4.421	4.593	4.601	4.574
2.5	4.234	4.379	4.385	4.397	4.383	4.250	4.205	4.397	4.441	4.441	4.423	4.431	4.593	4.589	4.544
2.6	4.274	4.391	4.411	4.419	4.419	4.302	4.205	4.058	4.028	4.117	4.141	4.400	4.562	4.508	4.534
2.7	4.290	4.266	4.353	4.401	4.417	4.337	4.298	4.363	4.369	4.208	4.141	4.447	4.496	4.476	4.447
2.8	4.290	4.278	4.250	4.278	4.343	4.052	4.357	4.385	4.409	4.401	4.375	4.339	4.395	4.373	4.343
2.9	4.302	4.284	4.246	4.036	4.070	4.326	4.379	4.399	4.399	4.401	4.399	4.385	4.341	4.139	4.218
3.0	4.318	4.278	4.232	4.038	4.302	4.335	4.379	4.383	4.389	4.391	4.391	4.363	4.343	4.137	4.347
3.1	4.298	4.250	4.060	4.038	4.248	4.318	4.361	4.367	4.373	4.373	4.371	4.363	4.298	4.246	4.365
3.2	4.266	4.085	4.101	4.060	4.135	4.141	4.339	4.341	4.339	4.339	4.318	4.109	4.185	4.246	4.379
3.3	4.353	4.343	4.133	4.060	4.191	4.216	4.232	4.238	4.234	4.310	4.339	4.109	4.173	4.234	4.363
3.4	4.389	4.391	4.365	4.093	4.419	4.423	4.425	4.301	4.218	4.359	4.383	4.349	4.171	4.133	4.298
3.5	4.411	4.415	4.397	4.343	4.411	4.415	4.439	4.445	4.411	4.391	4.399	4.397	4.345	4.133	4.117
3.6	4.429	4.423	4.413	4.373	4.383	4.399	4.415	4.437	4.431	4.415	4.417	4.435	4.423	4.125	4.103
3.7	4.431	4.419	4.395	4.367	4.363	4.381	4.395	4.409	4.411	4.431	4.443	4.464	4.462	4.411	4.105
3.8	4.423	4.395	4.359	4.337	4.351	4.363	4.375	4.383	4.359	4.443	4.464	4.472	4.478	4.476	4.101
3.9	4.379	4.359	4.318	4.282	4.335	4.347	4.367	4.377	4.117	4.429	4.462	4.472	4.490	4.480	4.298
4.0	4.286	4.250	4.218	4.024	4.286	4.302	4.345	4.339	4.107	4.399	4.460	4.447	4.480	4.464	4.335
4.1	4.324	4.294	4.250	4.199	4.008	4.218	4.238	4.205	4.246	4.218	4.431	4.443	4.447	4.425	4.078
4.2	4.324	4.302	4.258	4.218	4.250	4.278	4.206	4.254	4.222	4.254	4.415	4.470	4.490	4.464	4.377
4.3	4.316	4.298	4.268	4.218	4.266	4.282	4.262	4.270	4.230	4.415	4.522	4.530	4.524	4.496	4.433
4.4	4.314	4.294	4.266	4.395	4.367	4.365	4.363	4.258	4.363	4.508	4.538	4.536	4.518	4.496	4.460
4.5	4.298	4.357	4.395	4.403	4.415	4.409	4.383	4.353	4.343	4.508	4.512	4.508	4.490	4.476	4.441
4.6	4.270	4.353	4.383	4.391	4.399	4.399	4.385	4.365	4.359	4.480	4.484	4.470	4.451	4.433	4.433
4.7	4.278	4.339	4.361	4.367	4.377	4.367	4.363	4.343	4.224	4.425	4.441	4.427	4.411	4.391	4.449
4.8	4.314	4.314	4.343	4.343	4.343	4.351	4.343	4.341	4.109	4.339	4.359	4.345	4.298	4.282	4.439
4.9	4.294	4.318	4.246	4.302	4.314	4.314	4.298	4.264	4.093	4.143	4.270	4.359	4.395	4.381	4.345
5.0	4.250	4.282	4.153	4.181	4.205	4.248	4.214	4.066	4.343	4.415	4.449	4.441	4.419	4.385	4.363
5.1	4.532	4.460	4.234	4.335	4.349	4.320	4.161	4.482	4.508	4.500	4.476	4.447	4.425	4.395	4.357
5.2	4.609	4.560	4.141	4.371	4.351	4.290	4.508	4.556	4.544	4.506	4.480	4.458	4.423	4.391	4.343
5.3	4.605	4.560	4.256	4.212	4.278	4.423	4.530	4.568	4.544	4.512	4.480	4.455	4.413	4.379	4.205
5.4	4.546	4.270	4.490	4.528	4.496	4.401	4.508	4.556	4.540	4.512	4.480	4.447	4.415	4.306	4.371
5.5	4.466	4.556	4.601	4.589	4.538	4.484	4.490	4.548	4.536	4.508	4.484	4.439	4.169	4.119	4.415
5.6	4.578	4.633	4.621	4.605	4.540	4.480	4.379	4.516	4.528	4.504	4.437	4.222	4.165	4.117	4.383
5.7	4.621	4.621	4.621	4.601	4.528	4.472	4.262	4.395	4.447	4.462	4.423	4.280	4.272	4.262	4.254
5.8	4.601	4.605	4.595	4.544	4.520	4.462	4.530	4.595	4.548	4.502	4.447	4.383	4.306	4.314	4.314
5.9	4.302	4.556	4.556	4.512	4.462	4.409	4.625	4.619	4.568	4.524	4.472	4.407	4.298	4.316	4.314

BED ELEVATIONS - ROUGHNESS 2

X COOR.	STATION 71.3	71.4	71.5	71.6	71.7	71.8	71.9	72.0	72.1	72.2	72.3	72.4	72.5	72.6	72.7
0.1	4.126	4.085	4.416	4.416	4.441	4.433	4.441	4.427	4.392	4.335	4.238	4.148	4.197	4.083	4.242
0.2	4.059	4.345	4.416	4.416	4.441	4.433	4.433	4.433	4.404	4.368	4.311	4.197	4.193	4.148	4.234
0.3	4.061	4.327	4.372	4.372	4.425	4.427	4.431	4.431	4.400	4.372	4.333	4.262	4.193	4.002	4.193
0.4	4.421	4.404	4.290	4.290	4.392	4.423	4.425	4.425	4.396	4.368	4.335	4.256	4.262	4.156	4.158
0.5	4.457	4.437	4.400	4.398	4.327	4.384	4.408	4.408	4.392	4.360	4.327	4.254	4.236	4.278	4.262
0.6	4.465	4.439	4.416	4.416	4.177	4.246	4.327	4.335	4.355	4.345	4.311	4.030	4.197	4.351	4.335
0.7	4.467	4.441	4.421	4.421	4.331	3.986	4.099	4.140	4.270	4.246	4.197	4.030	4.292	4.360	4.331
0.8	4.471	4.445	4.429	4.429	4.378	4.327	4.099	4.169	4.392	4.449	4.360	4.091	4.305	4.280	4.327
0.9	4.486	4.457	4.439	4.439	4.392	4.370	4.327	4.327	4.459	4.538	4.538	4.502	4.392	4.303	4.327
1.0	4.494	4.473	4.453	4.449	4.408	4.384	4.331	4.347	4.482	4.538	4.508	4.465	4.400	4.295	4.327
1.1	4.498	4.482	4.457	4.459	4.416	4.368	4.303	4.374	4.482	4.522	4.500	4.457	4.358	4.295	4.317
1.2	4.484	4.477	4.465	4.465	4.404	4.311	4.116	4.366	4.473	4.496	4.465	4.423	4.295	4.262	4.262
1.3	4.355	4.433	4.441	4.441	4.343	4.049	4.116	4.368	4.441	4.441	4.425	4.382	4.177	4.295	4.262
1.4	4.299	4.225	4.329	4.331	4.124	4.303	4.345	4.313	4.327	4.404	4.384	4.345	4.376	4.368	4.362
1.5	4.335	4.266	4.164	4.169	4.360	4.388	4.392	4.384	4.368	4.323	4.067	4.300	4.433	4.441	4.433
1.6	4.355	4.288	4.175	4.181	4.408	4.404	4.406	4.394	4.386	4.368	4.317	4.416	4.433	4.441	4.441
1.7	4.360	4.290	4.164	4.156	4.408	4.416	4.408	4.394	4.392	4.378	4.360	4.372	4.376	4.384	4.392
1.8	4.335	4.246	3.961	4.063	4.335	4.419	4.414	4.400	4.400	4.392	4.376	4.299	4.229	4.270	4.317
1.9	4.295	4.270	3.961	4.004	4.191	4.392	4.416	4.394	4.406	4.400	4.382	4.206	4.246	4.262	4.248
2.0	4.404	4.400	4.368	4.360	4.236	4.303	4.421	4.416	4.410	4.398	4.351	4.205	4.225	4.242	4.248
2.1	4.449	4.461	4.441	4.441	4.351	4.266	4.408	4.423	4.412	4.384	4.315	4.181	4.201	4.219	4.225
2.2	4.453	4.490	4.482	4.482	4.400	4.345	4.331	4.392	4.376	4.112	4.116	4.156	4.131	4.197	4.197
2.3	4.475	4.494	4.494	4.494	4.457	4.382	-4.225	4.075	4.063	4.057	4.053	4.132	4.152	4.262	4.264
2.4	4.465	4.477	4.490	4.490	4.457	4.384	4.213	4.148	4.164	4.142	3.962	3.903	4.229	4.345	4.343
2.5	4.443	4.465	4.465	4.465	4.441	4.360	4.124	4.164	4.183	4.201	4.164	3.965	4.327	4.355	4.351
2.6	4.376	4.437	4.437	4.433	4.370	4.380	4.392	4.360	4.197	4.213	4.217	4.175	4.282	4.343	4.351
2.7	4.329	4.266	4.181	4.213	4.376	4.394	4.400	4.400	4.368	4.213	4.219	4.197	4.164	4.343	4.360
2.8	4.351	4.295	4.083	4.205	4.376	4.392	4.394	4.400	4.388	4.205	4.215	4.197	4.148	4.331	4.360
2.9	4.347	4.295	4.311	4.303	4.368	4.376	4.388	4.390	4.392	4.331	4.132	3.937	4.016	4.329	4.360
3.0	4.327	4.225	4.282	4.278	4.358	4.368	4.376	4.372	4.376	4.061	3.935	3.916	4.016	4.295	4.362
3.1	4.234	4.295	4.327	4.327	4.351	4.360	4.364	4.360	4.360	4.059	3.933	4.116	4.148	4.075	4.252
3.2	3.994	4.286	4.327	4.311	4.335	4.345	4.343	4.335	4.099	4.433	4.455	4.437	4.173	4.156	4.142
3.3	3.969	4.002	3.937	3.973	4.124	4.140	4.156	4.156	4.424	4.457	4.469	4.465	4.465	4.400	4.140
3.4	4.091	4.018	3.937	3.975	4.164	4.181	4.181	4.171	4.410	4.457	4.473	4.473	4.482	4.482	4.404
3.5	4.347	4.229	3.872	3.971	4.205	4.207	4.195	4.116	4.421	4.449	4.465	4.469	4.469	4.467	4.401
3.6	4.343	4.295	3.853	3.971	4.209	4.181	4.189	4.164	4.140	4.425	4.457	4.403	4.465	4.437	4.408
3.7	4.347	4.295	4.219	4.197	4.140	4.360	4.360	4.327	4.327	4.392	4.439	4.427	4.368	4.368	4.295
3.8	4.355	4.311	4.270	4.270	4.327	4.416	4.416	4.392	4.376	4.343	4.014	4.331	4.333	4.278	4.173
3.9	4.368	4.327	4.284	4.284	4.360	4.404	4.469	4.471	4.435	4.335	3.986	4.238	4.246	4.262	4.262
4.0	4.376	4.339	4.290	4.290	4.331	4.506	4.583	4.587	4.571	4.488	4.425	4.197	4.295	4.305	4.286
4.1	4.384	4.337	4.295	4.290	4.067	4.408	4.571	4.616	4.620	4.593	4.482	4.030	4.384	4.408	4.164
4.2	4.372	4.325	4.260	4.262	4.308	4.295	4.473	4.579	4.608	4.587	4.435	4.372	4.473	4.486	4.425
4.3	4.240	4.112	4.229	4.246	4.412	4.351	4.423	4.512	4.555	4.522	4.331	4.451	4.506	4.473	4.429
4.4	4.099	4.335	4.447	4.441	4.421	4.376	4.140	4.437	4.490	4.433	4.426	4.522	4.506	4.475	4.437
4.5	4.160	4.311	4.449	4.441	4.433	4.384	4.327	4.295	4.388	4.333	4.490	4.538	4.514	4.482	4.453
4.6	4.160	4.201	4.360	4.351	4.441	4.386	4.343	4.349	4.286	4.360	4.522	4.551	4.522	4.498	4.473
4.7	4.215	4.221	4.274	4.236	4.400	4.333	4.368	4.376	4.297	4.368	4.506	4.538	4.534	4.518	4.492
4.8	4.238	4.266	4.244	4.246	4.327	3.904	4.351	4.364	4.329	4.118	4.327	4.376	4.331	4.392	4.406
4.9	4.238	4.280	4.270	4.270	3.937	3.941	4.270	4.295	4.197	4.514	4.433	4.368	4.307	4.040	4.089
5.0	4.240	4.270	4.266	4.262	3.961	3.953	4.327	4.506	4.555	4.555	4.443	4.300	4.311	4.038	4.067
5.1	4.229	4.254	4.240	4.240	3.971	4.378	4.457	4.473	4.522	4.545	4.445	4.304	4.059	4.034	4.091
5.2	4.211	4.215	4.327	4.327	4.439	4.378	4.441	4.482	4.498	4.482	4.392	4.173	4.099	4.433	4.408
5.3	4.162	4.156	4.490	4.490	4.522	4.524	4.308	4.427	4.132	4.102	4.205	4.205	4.400	4.482	4.441
5.4	4.386	4.329	4.506	4.506	4.616	4.538	4.327	4.049	4.132	4.042	4.221	4.221	4.488	4.520	4.482
5.5	4.603	4.518	4.528	4.526	4.624	4.528	4.362	4.392	4.398	4.351	4.232	4.459	4.542	4.547	4.516
5.6	4.660	4.547	4.542	4.545	4.636	4.522	4.494	4.508	4.522	4.516	4.462	4.463	4.520	4.538	4.538
5.7	4.603	4.463	4.532	4.534	4.636	4.425	4.506	4.522	4.522	4.522	4.506	4.335	4.402	4.439	4.494
5.8	4.547	4.409	4.380	4.368	4.459	4.236	4.465	4.473	4.475	4.475	4.475	4.374	4.229	4.295	4.368
5.9	4.471	4.197	4.229	4.223	4.311	4.238	4.425	4.449	4.408	4.416	4.439	4.376	4.067	4.091	4.130

BED ELEVATIONS - ROUGHNESS 2

BED ELEVATIONS - ROUGHNESS 2

X COOR.	STATION 95.3	95.4	95.5	95.6	95.7	95.8	95.9	96.0	96.1	96.2	96.3	96.4	96.5	96.6	96.7
0.1	3.927	3.885	3.980	3.865	3.945	4.042	4.111	4.103	4.095	4.030	3.933	4.159	4.238	4.284	4.312
0.2	3.982	3.941	3.976	3.865	4.006	4.099	4.149	4.135	4.119	4.097	4.058	4.163	4.240	4.284	4.320
0.3	3.990	3.958	3.982	3.865	4.052	4.143	4.171	4.151	4.135	4.111	4.079	4.107	4.220	4.278	4.316
0.4	3.998	3.960	3.954	3.865	4.103	4.161	4.187	4.167	4.149	4.125	4.095	4.062	4.159	4.248	4.290
0.5	3.990	3.962	3.974	3.865	4.119	4.171	4.191	4.183	4.163	4.135	4.111	4.083	3.978	4.038	4.079
0.6	4.002	4.010	4.022	4.006	4.115	4.161	4.189	4.181	4.173	4.151	4.123	4.099	4.030	4.171	4.179
0.7	4.135	4.111	4.038	4.026	4.079	4.127	4.161	4.171	4.167	4.155	4.127	4.095	4.117	4.208	4.204
0.8	4.171	4.147	4.103	4.038	3.974	4.079	4.127	4.151	4.151	4.143	4.127	4.079	4.171	4.224	4.214
0.9	4.143	4.119	4.062	3.994	3.948	4.026	4.091	4.119	4.123	4.121	4.107	4.058	4.010	4.222	4.218
1.0	4.087	4.040	3.998	3.950	3.945	3.960	3.974	4.068	4.079	4.079	4.058	4.010	3.901	4.173	4.206
1.1	4.179	4.139	3.945	3.994	4.054	4.062	3.943	3.950	3.950	3.974	3.941	3.943	3.978	3.982	4.091
1.2	4.200	4.187	4.119	4.038	4.087	4.093	4.058	3.945	3.913	4.014	4.073	4.087	4.095	4.077	4.193
1.3	4.191	4.175	4.129	3.998	4.079	4.093	4.073	3.986	4.002	4.101	4.123	4.125	4.135	4.135	4.191
1.4	4.173	4.147	4.097	3.945	4.010	4.075	4.062	3.982	4.079	4.135	4.151	4.159	4.161	4.171	4.171
1.5	4.143	4.111	4.046	3.945	4.272	4.262	4.208	3.935	4.133	4.159	4.179	4.185	4.191	4.200	4.208
1.6	4.111	4.062	3.984	4.329	4.300	4.304	4.262	4.183	4.171	4.191	4.208	4.214	4.220	4.224	4.230
1.7	4.075	4.042	3.948	4.312	4.320	4.318	4.270	4.163	4.191	4.218	4.232	4.236	4.240	4.238	4.232
1.8	4.038	3.978	3.945	4.353	4.337	4.329	4.274	4.161	4.191	4.222	4.236	4.240	4.236	4.208	4.145
1.9	3.998	3.950	3.939	4.349	4.351	4.337	4.276	4.183	4.018	4.042	4.103	4.175	4.143	4.079	4.226
2.0	3.925	3.941	3.974	4.284	4.280	4.280	4.256	4.145	3.943	3.978	4.000	3.950	3.945	4.151	4.258
2.1	3.857	3.945	3.982	4.119	4.143	4.119	4.046	4.038	4.034	4.004	3.945	3.950	4.050	4.179	4.256
2.2	3.901	3.950	3.978	4.000	4.006	3.966	4.103	4.103	4.083	4.062	4.026	3.990	4.006	4.111	4.204
2.3	3.974	3.945	3.968	4.010	4.038	4.030	4.159	4.177	4.155	4.123	4.079	4.046	4.022	4.008	4.119
2.4	3.968	4.111	4.101	4.179	4.175	4.167	4.107	4.208	4.216	4.195	4.159	4.131	4.101	4.010	4.010
2.5	4.095	4.208	4.232	4.238	4.232	4.208	4.062	4.115	4.198	4.224	4.208	4.187	4.127	3.945	3.943
2.6	4.062	4.062	4.206	4.191	4.175	4.079	3.966	4.064	4.107	4.167	4.171	4.159	4.030	3.950	4.022
2.7	4.004	3.998	4.119	4.111	3.972	3.941	3.966	3.982	4.044	4.091	4.105	4.056	3.998	3.948	4.139
2.8	4.143	4.141	4.050	3.970	3.970	3.982	3.994	3.984	3.962	3.966	3.982	3.950	3.950	4.030	4.153
2.9	4.173	4.179	4.143	4.024	3.948	3.962	3.976	3.980	3.968	3.945	3.948	3.849	3.950	3.994	4.087
3.0	4.200	4.191	4.151	4.046	3.941	3.933	3.941	3.950	3.945	3.950	4.030	4.062	4.179	4.111	4.014
3.1	4.193	4.175	4.119	4.060	3.893	3.901	3.945	3.945	4.280	4.341	4.309	4.365	4.347	4.337	4.208
3.2	4.155	4.127	4.191	4.232	4.246	4.232	4.046	4.224	4.333	4.361	4.357	4.361	4.357	4.335	4.232
3.3	4.056	4.232	4.278	4.294	4.308	4.296	4.220	4.208	4.272	4.333	4.337	4.349	4.335	4.312	4.064
3.4	4.111	4.280	4.288	4.300	4.316	4.316	4.288	4.131	4.246	4.248	4.312	4.300	4.304	4.280	4.030
3.5	4.063	4.280	4.292	4.304	4.320	4.320	4.292	4.210	4.167	4.238	4.312	4.292	4.208	4.077	4.185
3.6	4.103	4.272	4.284	4.304	4.320	4.304	4.284	4.272	4.193	4.232	4.115	4.137	4.159	4.107	4.224
3.7	4.089	4.264	4.280	4.302	4.304	4.296	4.272	4.272	4.210	4.191	4.216	4.228	4.240	4.220	4.222
3.8	4.038	4.248	4.272	4.282	4.268	4.256	4.248	4.216	4.119	4.248	4.272	4.268	4.280	4.264	4.195
3.9	3.945	4.014	4.123	4.111	4.105	4.101	4.068	4.012	4.000	4.280	4.292	4.292	4.288	4.240	4.143
4.0	3.982	4.200	4.191	4.191	4.179	4.163	4.151	4.127	4.095	4.282	4.280	4.250	4.212	4.179	4.062
4.1	4.248	4.264	4.254	4.256	4.248	4.248	4.228	4.204	4.181	4.193	4.202	4.185	4.167	3.994	3.994
4.2	4.296	4.316	4.320	4.316	4.304	4.292	4.264	4.236	4.208	4.159	4.058	4.042	3.990	4.010	4.020
4.3	4.335	4.341	4.337	4.320	4.300	4.282	4.248	4.208	4.177	4.111	3.990	4.046	4.083	3.974	3.948
4.4	4.329	4.325	4.304	4.272	4.232	4.216	4.175	4.125	4.079	3.970	3.978	4.024	4.062	4.022	3.945
4.5	4.268	4.272	4.228	4.179	4.139	4.127	4.073	4.026	3.962	4.054	3.945	3.998	4.030	4.337	4.385
4.6	3.917	4.155	4.123	4.107	4.062	4.034	3.869	3.986	4.143	4.111	3.992	3.941	4.365	4.417	4.419
4.7	4.208	4.139	3.945	3.941	3.917	3.899	4.038	4.151	4.171	4.139	4.038	4.296	4.429	4.429	4.413
4.8	4.238	4.206	4.095	3.943	3.929	3.945	4.042	4.046	4.042	4.077	4.155	4.401	4.437	4.427	4.413
4.9	4.264	4.232	4.064	3.945	3.917	3.901	3.945	3.954	3.945	3.966	4.357	4.443	4.443	4.433	4.415
5.0	4.268	4.236	4.042	3.943	4.151	4.224	4.143	3.948	4.010	4.272	4.433	4.445	4.441	4.429	4.407
5.1	4.244	4.068	3.994	4.191	4.264	4.300	4.223	4.159	4.204	4.393	4.443	4.439	4.435	4.425	4.401
5.2	4.079	4.010	4.183	4.264	4.320	4.337	4.272	4.191	4.339	4.450	4.441	4.437	4.433	4.421	4.401
5.3	4.054	4.070	4.240	4.337	4.385	4.347	4.268	4.193	4.401	4.458	4.452	4.441	4.425	4.401	4.369
5.4	3.950	4.208	4.320	4.337	4.381	4.357	4.200	4.113	4.395	4.445	4.441	4.387	4.345	4.151	4.175
5.5	3.978	4.268	4.296	4.304	4.333	4.341	4.107	3.968	4.288	4.353	4.038	4.077	4.137	4.163	4.183
5.6	3.976	4.256	4.264	4.272	4.272	4.193	3.941	3.900	4.030	4.004	4.042	4.083	4.129	4.159	4.175
5.7	3.945	4.026	4.038	4.022	3.994	3.974	4.068	3.945	3.950	3.998	4.046	4.087	4.123	4.151	4.167
5.8	3.925	3.945	4.038	4.046	4.030	4.014	4.070	3.945	4.002	3.996	4.050	4.087	4.111	4.139	4.159
5.9	3.877	3.998	3.982	3.974	3.986	3.925	4.010	3.970	4.073	3.974	4.046	4.070	4.087	4.111	4.089

APPENDIX II

B. Bed elevation parameter YM (and 13 other statistical parameters described in the body of the report) at all stations for Roughness 1 and Roughness 2. The data shown are for the flume set at the slope of 0.008, Series I roughness. All dimensions are in feet.

YM = the arithmetic mean elevation,

YV = the variance of elevations,

YS = the skew of the elevations,

YM4 = the kurtosis of elevations,

SDYV = the standard deviation of YM,

CSY = the coefficient of skew of YM,

dYMAX = ELYMAX - YM,

ELYMAX = the maximum point elevation at the station,

XMAX = x coordinate of ELYMAX referenced to left side of section,

ZMAX = z (longitudinal) coordinate of ELYMAX referenced to the upstream traverse for the station,

dYMIN = YM - ELYMIN,

ELYMIN = the minimum point elevation at the station,

XMIN = x coordinate of ELYMIN referenced to left side of section, and

ZMIN = z coordinate of ELYMIN referenced to the upstream traverse for the station.

BEDLEVEL PARAMETERS: Station= 1 Region=all Roughness=1

YM	=	4.917	CSY	=	0.201	dYMIN	= -0.472
YV	=	0.023	dYMAX	=	0.358	ELYMIN	= 4.445
YS	=	0.001	ELYMAX	=	5.276	XMIN	= 2.200
YM4	=	1.463	XMAX	=	0.300	ZMIN	= 1.200
SDYV	=	0.151	ZMAX	=	0.800		

BEDLEVEL PARAMETERS: Station= 12 Region=all Roughness=1

YM	=	4.847	CSY	=	0.236	dYMIN	= -0.495
YV	=	0.023	dYMAX	=	0.394	ELYMIN	= 4.352
YS	=	0.001	ELYMAX	=	5.242	XMIN	= 2.100
YM4	=	1.345	XMAX	=	5.800	ZMIN	= 12.400
SDYV	=	0.151	ZMAX	=	11.400		

BEDLEVEL PARAMETERS: Station= 24 Region=all Roughness=1

YM	=	4.777	CSY	=	0.210	dYMIN	= -0.547
YV	=	0.027	dYMAX	=	0.332	ELYMIN	= 4.231
YS	=	0.001	ELYMAX	=	5.109	XMIN	= 1.600
YM4	=	1.520	XMAX	=	4.300	ZMIN	= 24.400
SDYV	=	0.164	ZMAX	=	23.300		

BEDLEVEL PARAMETERS: Station= 30 Region=all Roughness=1

YM	=	4.697	CSY	=	0.115	dYMIN	= -0.394
YV	=	0.024	dYMAX	=	0.412	ELYMIN	= 4.302
YS	=	0.000	ELYMAX	=	5.109	XMIN	= 2.500
YM4	=	1.348	XMAX	=	0.400	ZMIN	= 29.300
SDYV	=	0.155	ZMAX	=	29.300		

BEDLEVEL PARAMETERS: Station= 36 Region=all Roughness=1

YM	=	4.707	CSY	=	0.064	dYMIN	= -0.473
YV	=	0.032	dYMAX	=	0.376	ELYMIN	= 4.234
YS	=	0.000	ELYMAX	=	5.083	XMIN	= 4.100
YM4	=	1.946	XMAX	=	1.100	ZMIN	= 35.500
SDYV	=	0.179	ZMAX	=	35.800		

BEDLEVEL PARAMETERS: Station= 42 Region=all Roughness=1

YM	=	4.631	CSY	=	-0.005	dYMIN	= -0.471
YV	=	0.030	dYMAX	=	0.406	ELYMIN	= 4.161
YS	=	0.000	ELYMAX	=	5.037	XMIN	= 0.100
YM4	=	1.888	XMAX	=	5.200	ZMIN	= 42.600
SDYV	=	0.174	ZMAX	=	42.400		

BEDLEVEL PARAMETERS: Station= 48 Region=all Roughness=1

YM	=	4.602	CSY	=	0.319	dYMIN	= -0.507
YV	=	0.028	dYMAX	=	0.368	ELYMIN	= 4.096
YS	=	0.001	ELYMAX	=	4.971	XMIN	= 3.100
YM4	=	1.763	XMAX	=	3.500	ZMIN	= 47.800
SDYV	=	0.166	ZMAX	=	48.000		

BEDLEVEL PARAMETERS: Station= 54 Region=all Roughness=1

YM	=	4.520	CSY	=	0.426	dYMIN	= -0.456
YV	=	0.024	dYMAX	=	0.312	ELYMIN	= 4.063
YS	=	0.002	ELYMAX	=	4.832	XMIN	= 2.900
YM4	=	1.316	XMAX	=	3.200	ZMIN	= 53.500
SDYV	=	0.154	ZMAX	=	54.100		

BEDLEVEL PARAMETERS: Station= 60 Region=all Roughness=1

YM	= 4.533	CSY	= 0.400	dYMIN	= -0.563
YV	= 0.027	dYMAX	= 0.373	ELYMIN	= 3.971
YS	= 0.002	ELYMAX	= 4.906	XMIN	= 2.000
YM4	= 2.183	XMAX	= 4.900	ZMIN	= 60.200
SDYV	= 0.164	ZMAX	= 60.100		

BEDLEVEL PARAMETERS: Station= 66 Region=all Roughness=1

YM	= 4.359	CSY	= 0.162	dYMIN	= -0.422
YV	= 0.027	dYMAX	= 0.370	ELYMIN	= 3.937
YS	= 0.001	ELYMAX	= 4.729	XMIN	= 1.800
YM4	= 1.595	XMAX	= 5.700	ZMIN	= 66.600
SDYV	= 0.164	ZMAX	= 65.900		

BEDLEVEL PARAMETERS: Station= 72 Region=all Roughness=1

YM	= 4.414	CSY	= 0.051	dYMIN	= -0.471
YV	= 0.031	dYMAX	= 0.474	ELYMIN	= 3.943
YS	= 0.000	ELYMAX	= 4.888	XMIN	= 1.200
YM4	= 2.397	XMAX	= 1.300	ZMIN	= 71.800
SDYV	= 0.176	ZMAX	= 72.100		

BEDLEVEL PARAMETERS: Station= 78 Region=all Roughness=1

YM	= 4.297	CSY	= -0.251	dYMIN	= -0.354
YV	= 0.023	dYMAX	= 0.427	ELYMIN	= 3.943
YS	= -0.001	ELYMAX	= 4.725	XMIN	= 1.600
YM4	= 1.162	XMAX	= 3.100	ZMIN	= 77.500
SDYV	= 0.152	ZMAX	= 78.000		

BEDLEVEL PARAMETERS: Station= 84 Region=all Roughness=1

YM	= 4.285	CSY	= -0.156	dYMIN	= -0.415
YV	= 0.034	dYMAX	= 0.415	ELYMIN	= 3.870
YS	= -0.001	ELYMAX	= 4.700	XMIN	= 5.700
YM4	= 1.963	XMAX	= 5.500	ZMIN	= 84.000
SDYV	= 0.183	ZMAX	= 83.300		

BEDLEVEL PARAMETERS: Station= 96 Region=all Roughness=1

YM	= 4.131	CSY	= -0.049	dYMIN	= -0.299
YV	= 0.027	dYMAX	= 0.433	ELYMIN	= 3.832
YS	= 0.000	ELYMAX	= 4.564	XMIN	= 3.800
YM4	= 1.508	XMAX	= 4.800	ZMIN	= 96.000
SDYV	= 0.164	ZMAX	= 96.700		

BEDLEVEL PARAMETERS: Station=107 Region=all Roughness=1

YM	= 3.931	CSY	= -0.379	dYMIN	= -0.389
YV	= 0.025	dYMAX	= 0.456	ELYMIN	= 3.543
YS	= -0.002	ELYMAX	= 4.389	XMIN	= 2.500
YM4	= 1.755	XMAX	= 4.300	ZMIN	=107.600
SDYV	= 0.159	ZMAX	=106.300		

BEDLEVEL PARAMETERS: Station= 12 Region=all Roughness=2

YM	=	4.833	CSY	=	0.418	dYMIN	= -0.418
YV	=	0.C18	dYMAX	=	0.263	ELYMIN	= 4.415
YS	=	0.C01	ELYMAX	=	5.097	XMIN	= 4.100
YM4	=	0.759	XMAX	=	3.600	ZMIN	= 12.600
SDYV	=	0.135	ZMAX	=	11.600		

BEDLEVEL PARAMETERS: Station= 24 Region=all Roughness=2

YM	=	4.761	CSY	=	0.069	dYMIN	= -0.397
YV	=	0.C22	dYMAX	=	0.342	ELYMIN	= 4.364
YS	=	0.C00	ELYMAX	=	5.103	XMIN	= 1.600
YM4	=	0.941	XMAX	=	3.900	ZMIN	= 24.400
SDYV	=	0.149	ZMAX	=	23.500		

BEDLEVEL PARAMETERS: Station= 36 Region=all Roughness=2

YM	=	4.685	CSY	=	0.219	dYMIN	= -0.354
YV	=	0.C19	dYMAX	=	0.262	ELYMIN	= 4.331
YS	=	0.C01	ELYMAX	=	4.946	XMIN	= 2.500
YM4	=	0.706	XMAX	=	4.300	ZMIN	= 35.600
SDYV	=	0.137	ZMAX	=	36.000		

BEDLEVEL PARAMETERS: Station= 42 Region=all Roughness=2

YM	=	4.659	CSY	=	-0.017	dYMIN	= -0.433
YV	=	0.C18	dYMAX	=	0.291	ELYMIN	= 4.227
YS	=	0.C00	ELYMAX	=	4.950	XMIN	= 1.500
YM4	=	0.721	XMAX	=	5.100	ZMIN	= 41.500
SDYV	=	0.133	ZMAX	=	42.700		

BEDLEVEL PARAMETERS: Station= 48 Region=all Roughness=2

YM	=	4.561	CSY	=	0.037	dYMIN	= -0.362
YV	=	0.C19	dYMAX	=	0.302	ELYMIN	= 4.199
YS	=	0.000	ELYMAX	=	4.863	XMIN	= 0.300
YM4	=	0.719	XMAX	=	5.900	ZMIN	= 47.800
SDYV	=	0.136	ZMAX	=	47.600		

BEDLEVEL PARAMETERS: Station= 54 Region=all Roughness=2

YM	=	4.490	CSY	=	0.502	dYMIN	= -0.403
YV	=	0.C16	dYMAX	=	0.244	ELYMIN	= 4.087
YS	=	0.C01	ELYMAX	=	4.734	XMIN	= 4.100
YM4	=	0.570	XMAX	=	5.500	ZMIN	= 54.300
SDYV	=	0.126	ZMAX	=	53.400		

BEDLEVEL PARAMETERS: Station= 60 Region=all Roughness=2

YM	=	4.494	CSY	=	0.461	dYMIN	= -0.421
YV	=	0.C16	dYMAX	=	0.290	ELYMIN	= 4.072
YS	=	0.C01	ELYMAX	=	4.784	XMIN	= 1.900
YM4	=	0.714	XMAX	=	5.700	ZMIN	= 60.400
SDYV	=	0.127	ZMAX	=	60.000		

BEDLEVEL PARAMETERS: Station= 66 Region=all Roughness=2

YM	=	4.397	CSY	=	0.498	dYMIN	= -0.389
YV	=	0.C17	dYMAX	=	0.269	ELYMIN	= 4.008
YS	=	0.C01	ELYMAX	=	4.665	XMIN	= 4.100
YM4	=	0.737	XMAX	=	1.600	ZMIN	= 65.700
SDYV	=	0.131	ZMAX	=	65.700		

BEDLEVEL PARAMETERS: Station= 72 Region=all Roughness=2

YM	=	4.334	CSY	=	0.735	dYMIN	=	-0.480
YV	=	0.020	dYMAX	=	0.327	ELYMIN	=	3.853
YS	=	0.002	ELYMAX	=	4.660	XMIN	=	3.600
YM4	=	1.218	XMAX	=	5.600	ZMIN	=	71.500
SDYV	=	0.143	ZMAX	=	71.300			

BEDLEVEL PARAMETERS: Station= 84 Region=all Roughness=2

YM	=	4.203	CSY	=	0.354	dYMIN	=	-0.412
YV	=	0.018	dYMAX	=	0.258	ELYMIN	=	3.796
YS	=	0.001	ELYMAX	=	4.466	XMIN	=	3.900
YM4	=	0.718	XMAX	=	3.600	ZMIN	=	83.900
SDYV	=	0.135	ZMAX	=	84.600			

BEDLEVEL PARAMETERS: Station= 96 Region=all Roughness=2

YM	=	4.138	CSY	=	-0.206	dYMIN	=	-0.290
YV	=	0.019	dYMAX	=	0.319	ELYMIN	=	3.849
YS	=	-0.001	ELYMAX	=	4.458	XMIN	=	2.900
YM4	=	0.700	XMAX	=	5.300	ZMIN	=	96.400
SDYV	=	0.137	ZMAX	=	96.200			

APPENDIX II

C. Flume clip elevations (east and west) at each station for Roughness 1 and Roughness 2 for all slopes. All dimensions are in feet.

FLUME CLIP ELEVATION DATA

SLOPE	EAST STATIONS 0	12	24	36	48	60	72	84	96	108	WEST STATIONS 0	12	24	36	48	60	72	84	96	108
								ROUGHNESS 1												
0.0080																				
before	6.288	6.271	6.262	6.266	6.241	6.269	6.256	6.251	6.129	6.122	6.275	6.270	6.263	6.268	6.262	6.262	6.272	6.268	6.145	6.148
after	6.288	6.273	6.262	6.268	6.239	6.269	6.257	6.251	6.129	6.130	6.275	6.270	6.264	6.268	6.263	6.262	6.272	6.268	6.141	6.150
0.0105																				
before	6.225	6.171	6.120	6.084	6.019	6.000	5.950	5.908	5.743	5.700	6.214	6.166	6.122	6.081	6.040	5.997	5.970	5.925	5.761	5.725
after	6.225	5.170	6.118	6.085	6.015	6.003	5.951	5.908	5.743	5.703	6.212	6.165	6.120	6.083	6.038	5.997	5.965	5.922	5.760	5.724
0.0130																				
befre								incorrect data ommitted												
after	6.205	6.131	6.064	6.011	5.928	5.899	5.828	5.769	5.588	5.530	6.190	6.128	6.067	6.010	5.947	5.892	5.845	5.784	5.597	5.533
0.0155																				
before	6.159	6.058	5.960	5.880	5.768	5.708	5.610	5.520	5.308	5.228	6.143	6.053	5.962	5.880	5.790	5.702	5.627	5.535	5.330	5.245
after	6.159	6.058	5.960	5.881	5.768	5.707	5.609	5.516	5.311	5.225	6.140	6.055	5.962	5.879	5.789	5.704	5.627	5.536	5.330	5.249
0.0180																				
before	6.129	6.005	5.886	5.787	5.649	5.571	5.450	5.340	5.111	4.999	6.115	6.000	5.888	5.784	5.672	5.565	5.465	5.358	5.129	5.020
after	6.128	6.007	5.887	5.786	5.650	5.571	5.452	5.341	5.109	5.000	6.115	6.000	5.890	5.787	5.673	5.564	5.469	5.360	5.131	5.026
								ROUGHNESS 2												
0.0080																				
before	6.287	6.274	6.263	6.270	6.244	6.270	6.262	6.259	6.135	6.135	6.276	6.266	6.265	6.271	6.265	6.264	6.277	6.272	6.151	6.152
after	6.286	6.268	6.259	6.267	6.242	6.271	6.261	6.258	6.134	6.136	6.273	6.266	6.264	6.267	6.265	6.262	6.273	6.270	6.148	6.151
0.0105																				
before	6.247	6.203	6.167	6.148	6.098	6.103	6.066	6.037	5.887	5.863	6.234	6.199	6.172	6.152	6.123	6.095	6.081	6.049	5.902	5.878
after	6.245	6.202	6.166	6.152	6.098	6.102	6.065	6.037	5.887	5.863	6 230	6.199	6.172	6.147	6.116	6.092	6.081	6.048	5.902	5.880
0.0130																				
before	6.200	6.126	6.059	6.012	5.927	5.903	5.832	5.776	5.595	5.537	6.184	6.117	6.065	6.009	5.947	5.895	5.849	5.788	5.612	5.558
after	6.201	6.127	6.062	6.014	5.930	5.902	5.836	5.778	5.597	5.541	6.187	6.114	6.065	6.013	5.951	5.892	5.849	5.791	5.614	5.558
0.0155																				
before	6.154	6.049	5.955	5.877	5.763	5.760	5.609	5.518	5.306	5.222	6.141	6.047	5.957	5.878	5.786	5.693	5.621	5.532	5.324	5.241
after	6.155	6.049	5.953	5.876	5.761	5.702	5.609	5.512	5.306	5.222	6.140	6.047	5.958	5.872	5.784	5.697	5.620	5.532	5.323	5.241
0.0180																				
before	6.121	5.996	5.878	5.782	5.646	5.571	5.455	5.344	5.114	5.009	6.109	5.991	5.825	5.781	5.669	5.558	5.464	5.356	5.131	5.025
after	6.118	5.997	5.879	5.783	5.649	5.566	5.454	5.342	5.114	5.010	6.107	5.991	5.881	5.778	5.668	5.561	5.469	5.357	5.131	5.027

NOTE: The following experimental runs were made out of sequence and thus have their own sets of clip elevations.

RUN 11I	6.231	6.183	6.129	6.100	6.027	6.019	5.968	5.932	5.768	5.724	6.219	6.178	6.131	6.097	6.049	6.014	5.985	5.948	5.786	5.747
RUN 14I	6.204	6.125	6.057	6.004	5.919	5.887	5.813	5.755	5.581	5.529	6.189	6.122	6.060	6.003	5.938	5.880	5.830	5.770	5.590	5.532
RUN 15I	6.162	6.057	5.960	5.881	5.765	5.706	5.611	5.517	5.307	5.210	6.145	6.053	5.962	5.880	5.787	5.701	5.628	5.538	5.327	5.230

D. Average bed elevation ("footprint") at vertical velocity traverses (15 traverses each station; 27 point elevations were averaged at each traverse, see figure 10), Roughness 1 and Roughness 2. The data shown are for the flume set at slope of 0.008, Roughness 1. All dimensions are in feet.

trav = vertical traverse, and

elev = footprint elevation associated with vertical traverse number.

AVERAGE BED ELEVATIONS AT: STATION 1.2 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	5.103	4	4.929	7	4.980	10	4.927	13	4.901
2	5.113	5	4.861	8	4.796	11	4.837	14	4.923
3	5.005	6	4.983	9	4.916	12	4.978	15	4.922

AVERAGE BED ELEVATIONS AT: STATION 12.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.816	4	4.758	7	4.864	10	4.856	13	4.929
2	4.846	5	4.950	8	4.782	11	4.771	14	4.882
3	4.731	6	4.808	9	4.710	12	4.905	15	4.740

AVERAGE BED ELEVATIONS AT: STATION 24.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.623	4	4.870	7	4.733	10	4.865	13	4.715
2	4.675	5	4.645	8	4.793	11	4.701	14	4.815
3	4.768	6	4.827	9	4.761	12	4.911	15	4.800

AVERAGE BED ELEVATIONS AT: STATION 30.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.698	4	4.671	7	4.575	10	4.695	13	4.757
2	4.863	5	4.795	8	4.566	11	4.762	14	4.627
3	4.889	6	4.523	9	4.601	12	4.863	15	4.692

AVERAGE BED ELEVATIONS AT: STATION 36.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.715	4	4.897	7	4.715	10	4.780	13	4.698
2	4.731	5	4.777	8	4.612	11	4.843	14	4.714
3	4.698	6	4.851	9	4.489	12	4.565	15	4.650

AVERAGE BED ELEVATIONS AT: STATION 42.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.517	4	4.556	7	4.590	10	4.560	13	4.599
2	4.713	5	4.598	8	4.708	11	4.669	14	4.563
3	4.738	6	4.543	9	4.683	12	4.782	15	4.556

AVERAGE BED ELEVATIONS AT: STATION 48.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.515	4	4.533	7	4.652	10	4.632	13	4.720
2	4.529	5	4.680	8	4.411	11	4.624	14	4.650
3	4.531	6	4.386	9	4.740	12	4.683	15	4.626

AVERAGE BED ELEVATIONS AT: STATION 54.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.511	4	4.510	7	4.563	10	4.478	13	4.564
2	4.607	5	4.455	8	4.518	11	4.641	14	4.490
3	4.517	6	4.492	9	4.571	12	4.501	15	4.446

AVERAGE BED ELEVATIONS AT: STATION 60.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.515	4	4.492	7	4.490	10	4.531	13	4.536
2	4.520	5	4.578	8	4.699	11	4.655	14	4.673
3	4.464	6	4.326	9	4.599	12	4.612	15	4.575

AVERAGE BED ELEVATIONS AT: STATION 66.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.370	4	4.245	7	4.428	10	4.320	13	4.427
2	4.472	5	4.459	8	4.277	11	4.444	14	4.452
3	4.481	6	4.321	9	4.274	12	4.295	15	4.481

AVERAGE BED ELEVATIONS AT: STATION 72.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.384	4	4.444	7	4.308	10	4.384	13	4.410
2	4.385	5	4.589	8	4.268	11	4.545	14	4.451
3	4.309	6	4.468	9	4.410	12	4.415	15	4.301

AVERAGE BED ELEVATIONS AT: STATION 78.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.238	4	4.337	7	4.285	10	4.395	13	4.461
2	4.225	5	4.194	8	4.393	11	4.237	14	4.414
3	4.191	6	4.321	9	4.294	12	4.276	15	4.328

AVERAGE BED ELEVATIONS AT: STATION 84.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.524	4	4.134	7	4.390	10	4.351	13	4.272
2	4.529	5	4.225	8	4.145	11	4.244	14	4.280
3	4.417	6	4.202	9	4.375	12	4.150	15	4.150

AVERAGE BED ELEVATIONS AT: STATION 96.0 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.303	4	4.103	7	4.117	10	4.175	13	4.087
2	4.262	5	4.233	8	4.057	11	4.065	14	4.014
3	4.087	6	3.982	9	4.099	12	4.193	15	4.003

AVERAGE BED ELEVATIONS AT: STATION 107.3 / ROUGHNESS 1

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.028	4	3.859	7	3.778	10	3.838	13	4.001
2	3.952	5	3.849	8	3.962	11	3.934	14	4.001
3	3.894	6	3.832	9	3.936	12	3.817	15	3.839

AVERAGE BED ELEVATIONS AT: STATION 12.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.870	4	4.767	7	4.861	10	4.808	13	4.924
2	4.888	5	4.898	8	4.782	11	4.738	14	4.962
3	4.754	6	4.855	9	4.846	12	4.766	15	4.800

AVERAGE BED ELEVATIONS AT: STATION 24.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.591	4	4.858	7	4.665	10	4.789	13	4.702
2	4.637	5	4.598	8	4.822	11	4.682	14	4.811
3	4.801	6	4.730	9	4.753	12	4.864	15	4.811

AVERAGE BED ELEVATIONS AT: STATION 36.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.659	4	4.798	7	4.746	10	4.783	13	4.626
2	4.669	5	4.674	8	4.712	11	4.792	14	4.536
3	4.658	6	4.815	9	4.746	12	4.681	15	4.464

AVERAGE BED ELEVATIONS AT: STATION 42.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.618	4	4.615	7	4.608	10	4.598	13	4.620
2	4.643	5	4.654	8	4.762	11	4.703	14	4.606
3	4.641	6	4.743	9	4.663	12	4.717	15	4.591

AVERAGE BED ELEVATIONS AT: STATION 48.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.483	4	4.526	7	4.522	10	4.578	13	4.612
2	4.500	5	4.574	8	4.478	11	4.513	14	4.627
3	4.480	6	4.508	9	4.583	12	4.744	15	4.639

AVERAGE BED ELEVATIONS AT: STATION 54.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.507	4	4.544	7	4.387	10	4.433	13	4.534
2	4.546	5	4.562	8	4.397	11	4.519	14	4.448
3	4.452	6	4.543	9	4.446	12	4.472	15	4.441

AVERAGE BED ELEVATIONS AT: STATION 60.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.378	4	4.542	7	4.484	10	4.638	13	4.525
2	4.405	5	4.438	8	4.534	11	4.496	14	4.666
3	4.481	6	4.351	9	4.443	12	4.446	15	4.621

AVERAGE BED ELEVATIONS AT: STATION 66.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.381	4	4.410	7	4.409	10	4.361	13	4.454
2	4.472	5	4.453	8	4.347	11	4.434	14	4.386
3	4.463	6	4.468	9	4.359	12	4.342	15	4.431

AVERAGE BED ELEVATIONS AT: STATION 72.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.313	4	4.414	7	4.221	10	4.404	13	4.343
2	4.331	5	4.366	8	4.214	11	4.421	14	4.465
3	4.265	6	4.331	9	4.351	12	4.322	15	4.392

AVERAGE BED ELEVATIONS AT: STATION 84.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.307	4	4.334	7	4.341	10	4.148	13	4.161
2	4.339	5	4.169	8	4.107	11	4.284	14	4.195
3	4.286	6	4.073	9	4.226	12	4.084	15	4.163

AVERAGE BED ELEVATIONS AT: STATION 96.0 / ROUGHNESS 2

trav	elev	trav	elev	trav	elev	trav	elev	trav	elev
1	4.138	4	4.033	7	4.121	10	4.182	13	4.287
2	4.141	5	4.164	8	4.056	11	4.077	14	4.087
3	4.136	6	4.088	9	4.235	12	4.250	15	4.040

APPENDIX III

A. Velocity measurements, in feet per second, all traverses, all stations, both Roughness 1 and Roughness 2. See tables 1 and 2 for run number and stations where velocity data were obtained.

V = computed velocity using meter equation,

R = number of revolutions per second,

HT = approximate flow depth,

Horiz = the horizontal distance from the left wall looking upstream,

Vert = elevation of point velocity, and

Velo = measured velocity.

RUN NUMBER: 1
METER EQUATION: V = 1.027R + 0.074

SLOPE = 0.0080
ROUGHNESS: 1

############ STATION = 36 TEMPERATURE = 64 F ############

HT=1.25 HORIZ=0.20		HT=1.23 HORIZ=0.40		HT=1.26 HORIZ=0.60		HT=0.93 HORIZ=1.00		HT=1.09 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.82	3.24	5.82	3.68	5.82	3.88	5.82	4.28	5.82	4.51
5.62	3.55	5.62	4.16	5.62	4.43	5.62	4.71	5.62	4.50
5.42	3.41	5.43	4.20	5.42	4.60	5.42	4.73	5.42	4.21
5.22	3.34	5.22	3.97	5.23	4.40	5.22	4.61	5.22	3.60
5.02	3.13	5.02	3.56	5.02	2.64				

HT=1.06 HORIZ=2.00		HT=1.13 HORIZ=2.50		HT=1.18 HORIZ=3.00		HT=1.44 HORIZ=3.50		HT=1.05 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.82	4.15	5.82	4.05	5.82	4.54	5.82	5.61	5.82	5.15
5.62	3.91	5.62	4.21	5.62	4.79	5.62	5.39	5.62	5.26
5.42	3.43	5.42	4.19	5.42	4.81	5.42	5.16	5.42	5.19
5.22	2.77	5.22	3.54	5.22	4.66	5.22	4.97	5.23	4.90
		5.02	3.29	5.02	3.90	5.02	4.37		
						4.82	3.02		

HT=1.01 HORIZ=4.50		HT=1.40 HORIZ=5.00		HT=1.19 HORIZ=5.40		HT=1.15 HORIZ=5.60		HT=1.15 HORIZ=5.81	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.82	4.72	5.82	4.30	5.82	3.48	5.82	3.09	5.82	2.63
5.62	4.90	5.62	4.39	5.62	3.83	5.62	3.47	5.62	2.90
5.42	4.86	5.42	4.36	5.42	3.86	5.42	3.70	5.42	3.18
5.22	4.31	5.22	3.72	5.22	3.53	5.23	3.61	5.22	3.30
		5.02	3.15	5.02	2.55	5.02	2.78	5.02	2.97
		4.82	2.27						

############ STATION = 60 TEMPERATURE = 64 F ############

HT=1.04 HORIZ=0.20		HT=1.06 HORIZ=0.40		HT=1.23 HORIZ=0.61		HT=1.09 HORIZ=1.00		HT=1.06 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.58	3.04	5.58	3.39	5.58	3.92	5.58	4.37	5.58	4.59
5.38	2.96	5.38	3.82	5.38	4.43	5.38	4.72	5.38	4.65
5.18	2.99	5.18	3.83	5.18	4.48	5.18	4.63	5.18	4.49
4.98	2.98	4.98	3.80	4.98	4.38	4.98	4.22	4.98	4.03
				4.78	3.98				

HT=1.33 HORIZ=2.00		HT=1.24 HORIZ=2.50		HT=0.92 HORIZ=3.00		HT=0.99 HORIZ=3.50		HT=1.15 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.58	4.49	5.58	4.47	5.58	4.89	5.58	5.23	5.58	5.50
5.38	4.14	5.38	4.14	5.38	4.81	5.38	5.36	5.38	5.40
5.18	3.49	5.18	3.65	5.18	4.50	5.18	5.00	5.18	4.94
4.98	2.19	4.98	3.41	4.98	4.25	4.97	4.14	4.98	4.21
4.78	1.87	4.78	3.11					4.78	3.61
4.58	1.63								

HT=0.91 HORIZ=4.50		HT=0.85 HORIZ=5.00		HT=1.06 HORIZ=5.40		HT=0.95 HORIZ=5.60		HT=1.00 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.58	4.84	5.58	4.23	5.58	4.01	5.57	3.74	5.58	3.55
5.38	4.98	5.38	4.60	5.37	4.34	5.38	4.17	5.38	3.74
5.18	5.02	5.18	4.55	5.18	4.23	5.18	4.09	5.18	3.55
4.98	4.45			4.98	3.76	4.97	3.63	4.98	2.88

RUN NUMBER: 1
METER EQUATION: V = 1.027R + 0.074

SLOPE = 0.0080
ROUGHNESS: 1

############## STATION = 84 TEMPERATURE = 64 F ##############

HT=0.92 HORIZ=0.20		HT=0.93 HORIZ=0.40		HT=0.99 HORIZ=0.60		HT=1.26 HORIZ=1.00		HT=1.04 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.34	3.56	5.34	4.04	5.34	4.39	5.34	4.56	5.34	5.07
5.14	3.63	5.14	4.39	5.14	4.63	5.14	4.77	5.14	5.09
4.94	3.25	4.94	3.98	4.94	4.49	4.94	4.63	4.94	4.74
4.74	2.26	4.74	2.47	4.74	3.76	4.74	4.28	4.74	4.52
						4.54	3.53		

HT=1.37 HORIZ=2.00		HT=1.02 HORIZ=2.50		HT=1.36 HORIZ=3.00		HT=0.91 HORIZ=3.50		HT=1.03 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.34	4.84	5.34	4.82	5.34	5.48	5.34	5.61	5.35	5.68
5.14	4.55	5.14	4.45	5.14	5.20	5.14	5.64	5.14	5.50
4.94	4.13	4.94	3.67	4.94	4.42	4.94	5.26	4.94	5.23
4.74	3.71	4.74	2.80	4.74	3.93	4.74	4.92	4.74	4.47
4.54	3.11			4.54	3.52				
4.34	1.77			4.34	2.49				

HT=1.25 HORIZ=4.50		HT=1.31 HORIZ=5.01		HT=0.90 HORIZ=5.40		HT=0.93 HORIZ=5.60		HT=1.07 HORIZ=5.81	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.34	5.08	5.34	4.78	5.34	4.26	5.34	3.93	5.34	3.26
5.14	5.29	5.14	4.93	5.14	4.52	5.14	4.08	5.14	3.33
4.94	4.93	4.94	4.75	4.94	4.29	4.94	4.12	4.94	3.42
4.74	3.88	4.74	4.23	4.74	3.99	4.74	3.48	4.74	3.07
4.54	2.03	4.54	3.76						
		4.33	2.82						

RUN NUMBER: 2
METER EQUATION: V = 1.027R + 0.074

SLOPE = 0.0080
ROUGHNESS: 1

############ STATION = 36 TEMPERATURE = 64 F ############

HT=0.84 HORIZ=0.21		HT=0.82 HORIZ=0.40		HT=0.86 HORIZ=0.61		HT=0.53 HORIZ=1.00		HT=0.69 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.42	1.86	5.42	2.10	5.42	2.64	5.41	3.15	5.42	3.25
5.22	2.23	5.22	2.58	5.22	2.89	5.22	3.49	5.22	3.05
5.02	2.12	5.02	2.38	5.02	1.98				

HT=0.66 HORIZ=2.00		HT=0.72 HORIZ=2.50		HT=0.77 HORIZ=2.99		HT=1.03 HORIZ=3.50		HT=0.65 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.42	3.06	5.41	3.03	5.42	3.46	5.42	3.70	5.41	3.62
5.21	2.55	5.22	2.72	5.22	3.39	5.22	3.67	5.22	3.67
		5.02	2.56	5.02	3.10	5.02	3.26		
						4.82	2.42		

HT=0.61 HORIZ=4.49		HT=0.99 HORIZ=5.00		HT=0.78 HORIZ=5.40		HT=0.74 HORIZ=5.60		HT=0.74 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.42	3.51	5.41	3.00	5.41	2.62	5.41	2.17	5.42	1.80
5.22	3.35	5.22	2.73	5.22	2.71	5.22	2.56	5.22	2.40
		5.02	2.38	5.02	2.23	5.02	2.31	5.02	2.15
		4.81	1.72						

############ STATION = 60 TEMPERATURE = 64 F ############

HT=0.65 HORIZ=0.20		HT=0.66 HORIZ=0.40		HT=0.83 HORIZ=0.61		HT=0.70 HORIZ=1.00		HT=0.67 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.18	1.61	5.18	1.75	5.18	2.07	5.18	3.18	5.18	3.42
4.98	2.17	4.98	2.34	4.98	2.64	4.98	3.17	4.98	3.25
				4.78	2.77				

HT=0.93 HORIZ=2.00		HT=0.85 HORIZ=2.51		HT=0.53 HORIZ=3.00		HT=0.59 HORIZ=3.50		HT=0.75 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.18	2.73	5.19	3.16	5.18	3.59	5.18	3.71	5.18	3.64
4.98	1.80	4.98	2.90	4.98	3.47	4.98	3.20	4.98	3.04
4.78	1.38	4.78	2.48					4.78	2.64
4.58	1.48								

HT=0.51 HORIZ=4.50		HT=0.45 HORIZ=5.01		HT=0.66 HORIZ=5.40		HT=0.55 HORIZ=5.60		HT=0.60 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.18	3.68	5.19	3.54	5.18	3.08	5.18	3.01	5.19	2.74
4.98	3.30			4.98	3.19	4.98	3.02	4.98	2.64

RUN NUMBER: 2
METER EQUATION: V = 1.027R + 0.074

SLOPE = 0.0080
ROUGHNESS: 1

############ STATION = 84 TEMPERATURE = 64 F ############

HT=0.51 HORIZ=0.20		HT=0.51 HORIZ=0.40		HT=0.57 HORIZ=0.60		HT=0.85 HORIZ=1.00		HT=0.62 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.93	2.08	4.93	2.11	4.93	2.70	4.93	3.19	4.93	3.73
4.73	1.64	4.73	1.42	4.73	2.45	4.73	3.25	4.73	3.66
						4.53	2.52		

HT=0.95 HORIZ=1.99		HT=0.61 HORIZ=2.50		HT=0.94 HORIZ=2.99		HT=0.49 HORIZ=3.50		HT=0.62 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.93	3.58	4.93	3.31	4.93	3.84	4.93	4.01	4.93	3.61
4.73	3.2666	4.72	2.51					4.73	3.17
4.53	2.89			4.53	2.97				
4.33	1.48			4.32	1.95				

HT=0.84 HORIZ=4.50		HT=0.90 HORIZ=5.01		HT=0.49 HORIZ=5.40		HT=0.51 HORIZ=5.60		HT=0.66 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.93	3.31	4.93	3.81	4.92	3.33	4.93	2.84	4.92	2.24
4.73	2.67	4.73	3.69			4.73	2.93	4.73	2.55
4.52	0.92	4.52	3.19						

RUN NUMBER: 5
METER EQUATION: V = 1.022R + 0.074

SLOPE = 0.0080
ROUGHNESS: 1

############ STATION = 36 TEMPERATURE = 65 F ############

HT=0.40 HORIZ=0.20		HT=0.40 HORIZ=0.40		HT=0.40 HORIZ=0.60		HT=0.20 HORIZ=1.25		HT=0.20 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.02	1.24	5.02	1.31	5.02	1.00	5.02	1.87	5.02	1.47
4.82	1.30	4.82	1.17	4.82	0.69				

HT=0.20 HORIZ=1.75		HT=0.20 HORIZ=0.00		HT=0.20 HORIZ=2.25		HT=0.20 HORIZ=2.50		HT=0.20 HORIZ=2.75	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.02	1.29	5.02	1.64	5.02	1.71	5.02	1.88	5.02	2.01

HT=0.40 HORIZ=0.00		HT=0.60 HORIZ=3.25		HT=0.60 HORIZ=3.50		HT=0.40 HORIZ=3.75		HT=0.20 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.02	2.23	5.02	2.39	5.02	2.19	5.02	2.22	5.02	2.24
4.92	1.43	4.82	2.10	4.82	1.74	4.92	2.18		
		4.67	1.47	4.62	1.22				

HT=0.20 HORIZ=4.50		HT=0.40 HORIZ=4.75		HT=0.60 HORIZ=0.00		HT=0.40 HORIZ=5.40		HT=0.40 HORIZ=5.60	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.02	1.79	5.02	1.54	5.02	1.51	5.02	1.84	5.02	1.78
		4.82	0.99	4.82	1.21	4.92	1.57	4.92	1.74
				4.72	0.80				

HT=0.40 HORIZ=5.80		HT= HORIZ=
VERT	VELO	
5.02	1.42	
4.92	1.53	

############ STATION = 60 TEMPERATURE = 65 F ############

HT=0.20 HORIZ=0.20		HT=0.20 HORIZ=0.40		HT=0.40 HORIZ=0.60		HT=0.40 HORIZ=0.00		HT=0.20 HORIZ=1.25	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.81	1.26	4.81	1.16	4.81	1.53	4.81	1.64	4.81	1.75
				4.61	1.47	4.71	1.64		

HT=0.20 HORIZ=1.50		HT=0.40 HORIZ=1.75		HT=0.60 HORIZ=0.00		HT=0.60 HORIZ=2.25		HT=0.40 HORIZ=2.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.81	1.71	4.81	1.62	4.81	0.86	4.81	0.68	4.81	1.27
		4.61	1.52	4.61	1.26	4.61	1.09	4.61	1.67
				4.51	0.99	4.51	0.32		

HT=0.20 HORIZ=2.75		HT=0.20 HORIZ=3.50		HT=0.40 HORIZ=3.75		HT=0.40 HORIZ=0.00		HT=0.40 HORIZ=4.25	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.81	1.67	4.81	1.16	4.81	1.39	4.81	1.24	4.81	1.60
				4.71	1.32	4.71	1.23	4.71	1.51

HT=0.40 HORIZ=5.20		HT=0.20 HORIZ=5.40		HT=0.20 HORIZ=5.80		HT= HORIZ=
VERT	VELO	VERT	VELO	VERT	VELO	
4.81	1.77	4.81	1.84	4.81	1.77	
4.61	1.62					

RUN NUMBER: 5 SLOPE = 0.0080
METER EQUATION: V = 1.022R + 0.074 ROUGHNESS: 1

############ STATION = 84 TEMPERATURE = 65 F ############

HT=0.20 HORIZ=0.60		HT=0.40 HORIZ=0.80		HT=0.40 HORIZ=0.00		HT=0.40 HORIZ=1.25		HT=0.20 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.57	0.83	4.57	0.99	4.57	1.09	4.57	0.99	4.57	2.05
		4.47	1.04	4.37	1.25	4.37	1.84		

HT=0.40 HORIZ=1.75		HT=0.60 HORIZ=0.00		HT=0.20 HORIZ=2.50		HT=0.40 HORIZ=2.75		HT=0.60 HORIZ=0.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.57	2.13	4.57	1.92	4.57	0.93	4.57	1.52	4.57	2.06
4.47	1.78	4.37	2.03			4.47	1.92	4.37	1.57
		4.27	1.57					4.27	1.13

HT=0.40 HORIZ=3.25		HT=0.20 HORIZ=0.00		HT=0.40 HORIZ=4.25		HT=0.40 HORIZ=4.50		HT=0.60 HORIZ=4.75	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.57	2.44	4.57	1.91	4.57	1.91	4.57	0.52	4.57	0.94
4.47	2.63			4.37	0.84	4.37	0.61	4.37	0.62
								4.27	0.45

HT=0.40 HORIZ=0.00		HT=0.40 HORIZ=5.20		HT=0.20 HORIZ=5.80		HT= HORIZ=
VERT	VELO	VERT	VELO	VERT	VELO	
4.57	2.04	4.57	2.39	4.57	1.44	
4.37	1.96	4.37	2.26			

RUN NUMBER: 6
METER EQUATION: V = 1.027R + 0.074

SLOPE = 0.0080
ROUGHNESS: 1

############ STATION = 24 TEMPERATURE = 65 F ############

HT=1.34 HORIZ=0.20		HT=1.25 HORIZ=0.40		HT=1.19 HORIZ=0.60		HT=1.12 HORIZ=1.00		HT=1.36 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.94	3.12	5.94	3.66	5.94	3.93	5.94	4.02	5.94	4.47
5.74	3.21	5.74	3.91	5.74	4.32	5.74	4.39	5.74	4.64
5.54	2.95	5.54	3.69	5.54	4.39	5.54	4.59	5.54	4.18
5.34	2.24	5.34	3.16	5.34	4.00	5.34	4.37	5.34	3.46
5.14	1.30	5.14	2.50	5.14	3.50	5.14	3.91	5.14	2.67
4.93	0.71							4.94	0.67

HT=1.23 HORIZ=2.01		HT=1.10 HORIZ=2.50		HT=1.18 HORIZ=3.00		HT=1.20 HORIZ=3.50		HT=1.12 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.94	4.39	5.94	4.29	5.94	4.51	5.94	4.73	5.93	4.62
5.74	4.23	5.74	4.22	5.74	4.74	5.74	4.85	5.74	4.76
5.54	3.45	5.54	3.51	5.54	4.40	5.54	4.47	5.54	4.28
5.34	2.92	5.34	2.65	5.34	3.88	5.34	4.09		
5.14	2.20			5.14	3.83	5.14	3.79	5.14	2.65

HT=1.44 HORIZ=4.50		HT=1.04 HORIZ=5.01		HT=1.23 HORIZ=5.40		HT=1.14 HORIZ=5.60		HT=1.11 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.94	4.47	5.90	4.14	5.94	3.69	5.94	3.41	5.94	3.11
5.74	4.80	5.74	4.29	5.74	3.93	5.73	3.64	5.74	3.30
5.54	4.45	5.54	4.34	5.54	3.64	5.54	3.58	5.54	3.25
5.34	4.19	5.34	3.93	5.34	2.59	5.33	2.74	5.34	2.79
5.14	2.02			5.14	1.59	5.14	1.63	5.14	2.00
4.94	1.25								

############ STATION = 48 TEMPERATURE = 66 F ############

HT=1.31 HORIZ=0.20		HT=1.29 HORIZ=0.40		HT=1.30 HORIZ=0.60		HT=1.31 HORIZ=1.00		HT=1.11 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.73	2.77	5.73	3.16	5.73	3.68	5.73	4.26	5.73	4.21
5.52	2.76	5.53	3.47	5.53	3.98	5.53	4.44	5.53	4.42
5.33	2.79	5.32	3.55	5.32	4.06	5.33	4.45	5.33	3.99
5.13	2.99	5.13	3.47	5.13	3.89	5.13	4.27	5.13	3.41
4.93	2.57	4.93	2.93	4.93	3.54	4.93	3.57	4.93	2.79
4.73	0.67					4.73	0.96		

HT=1.34 HORIZ=2.00		HT=1.02 HORIZ=2.50		HT=1.29 HORIZ=3.00		HT=0.90 HORIZ=3.50		HT=1.06 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.73	4.01	5.73	4.16	5.73	4.49	5.72	5.03	5.73	4.96
5.53	3.89	5.53	4.06	5.52	4.63	5.53	5.06	5.53	5.00
5.32	3.35	5.33	3.79	5.33	4.11	5.33	4.69	5.33	4.83
5.13	2.92	5.13	3.40	5.13	3.51	5.13	3.87	5.13	3.92
4.93	2.20			4.93	2.89				
4.73	1.15								

HT=1.09 HORIZ=4.50		HT=1.13 HORIZ=5.00		HT=1.00 HORIZ=5.40		HT=1.25 HORIZ=5.60		HT=1.17 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.73	4.31	5.73	3.94	5.73	3.66	5.73	3.52	5.73	3.03
5.52	4.53	5.53	4.02	5.52	3.84	5.52	3.55	5.52	3.10
5.32	4.43	5.33	3.88	5.33	3.42	5.33	3.50	5.33	2.95
5.13	4.23	5.13	3.28	5.13	3.01	5.12	3.06	5.13	2.78
		4.93	2.70			4.93	2.62	4.93	2.48

RUN NUMBER: 6
METER EQUATION: V = 1.027R + 0.074

SLOPE = 0.0080
ROUGHNESS: 1

########## STATION = 72 TEMPERATURE = 67 F ##########

HT=1.21		HT=1.23		HT=1.33		HT=1.23		HT=0.95	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.61		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.57	3.27	5.57	3.38	5.57	3.53	5.57	3.77	5.57	4.01
5.37	3.19	5.37	3.81	5.37	4.06	5.37	4.03	5.37	4.08
5.17	3.02	5.17	3.88	5.17	4.02	5.17	4.09	5.17	3.91
4.97	2.83	4.97	3.55	4.97	3.93	4.97	4.03	4.98	3.49
4.77	2.50	4.77	3.17	4.77	3.51	4.77	2.17		
				4.57	2.45				

HT=1.10		HT=1.32		HT=1.42		HT=1.16		HT=1.35	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.57	4.11	5.57	3.94	5.57	4.28	5.57	4.69	5.57	4.66
5.37	3.73	5.37	3.62	5.37	4.33	5.37	4.65	5.37	4.71
5.17	3.44	5.17	3.49	5.17	3.88	5.17	4.52	5.17	4.57
4.98	2.96	4.98	3.01	4.97	3.37	4.97	4.26	4.97	4.17
4.77	2.58	4.77	2.26	4.77	2.86	4.77	3.76	4.77	3.03
		4.57	0.71	4.57	2.53			4.57	1.12

HT=1.04		HT=1.17		HT=1.27		HT=1.28		HT=1.30	
HORIZ=4.50		HORIZ=5.01		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.57	4.13	5.57	3.66	5.57	3.31	5.57	3.03	5.57	2.84
5.37	4.27	5.37	3.84	5.37	3.71	5.37	3.41	5.37	3.22
5.17	4.03	5.17	3.55	5.17	3.74	5.17	3.70	5.17	3.24
4.97	3.50	4.97	2.87	4.97	3.56	4.97	3.27	4.97	2.91
		4.77	1.99	4.77	3.20	4.77	2.53	4.77	2.07

########## STATION = 84 TEMPERATURE = 67 F ##########

HT=1.03		HT=1.04		HT=1.10		HT=1.37		HT=1.15	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.60		HORIZ=1.00		HORIZ=1.51	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.46	3.00	5.45	3.57	5.46	3.78	5.45	4.09	5.45	4.26
5.25	3.12	5.25	3.71	5.25	3.99	5.25	4.19	5.25	4.39
5.05	2.81	5.05	3.60	5.05	3.78	5.05	3.95	5.05	4.15
4.85	2.19	4.85	2.49	4.85	3.27	4.85	3.76	4.85	3.99
						4.65	3.31	4.65	3.51
						4.45	2.29		

HT=1.48		HT=1.13		HT=1.47		HT=1.02		HT=1.14	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=3.99	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.45	4.19	5.45	4.22	5.45	4.52	5.45	4.96	5.45	4.85
5.25	4.10	5.25	3.81	5.25	4.52	5.25	4.88	5.25	4.97
5.06	3.75	5.05	3.33	5.05	4.05	5.05	4.43	5.06	4.56
4.85	3.50	4.85	2.54	4.85	3.51	4.85	3.94	4.85	4.03
4.66	3.00	4.65	1.48	4.65	3.11			4.65	3.33
4.45	1.91			4.46	2.49				

HT=1.37		HT=1.42		HT=1.01		HT=1.04		HT=1.18	
HORIZ=4.50		HORIZ=5.01		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.45	4.56	5.45	4.06	5.45	3.62	5.45	3.28	5.45	2.90
5.25	4.53	5.25	4.22	5.25	3.88	5.25	3.47	5.25	2.89
5.05	4.14	5.05	4.13	5.05	3.79	5.05	3.38	5.05	2.87
4.85	3.56	4.85	3.78	4.85	3.51	4.85	3.20	4.85	2.77
4.65	2.68	4.65	3.42					4.65	2.09
4.45	0.76	4.46	2.65						

RUN NUMBER: 7
METER EQUATION: V = 1.027R + 0.074

SLOPE = 0.0080
ROUGHNESS: 1

############ STATION = 24 TEMPERATURE = 64 F ############

HT=0.92		HT=0.83		HT=0.77		HT=0.70		HT=0.94	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.60		HORIZ=1.01		HORIZ=1.51	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.52	1.79	5.52	2.29	5.52	2.75	5.52	3.30	5.52	3.51
5.33	1.59	5.32	2.22	5.33	2.96	5.33	3.44	5.32	3.06
5.13	0.92	5.13	1.97	5.12	2.78	5.12	3.11	5.12	2.42
4.93	0.56							4.92	0.41

HT=0.82		HT=0.68		HT=0.76		HT=0.78		HT=0.71	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.01		HORIZ=3.51		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.52	3.36	5.52	2.93	5.52	3.60	5.52	3.47	5.52	3.48
5.33	2.93	5.32	2.08	5.33	3.49	5.32	3.25	5.32	3.29
5.12	2.15			5.12	3.06	5.12	3.05	5.12	2.14

HT=1.02		HT=0.62		HT=0.82		HT=0.72		HT=0.70	
HORIZ=4.51		HORIZ=5.00		HORIZ=5.40		HORIZ=5.61		HORIZ=5.81	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.32	3.41	5.52	3.02	5.52	2.63	5.52	2.55	5.52	2.37
5.33	3.51	5.32	2.87	5.32	1.90	5.32	2.13	5.32	2.45
5.12	1.58			5.12	1.02	5.12	1.29		
4.93	1.18								

############ STATION = 48 TEMPERATURE = 69 F ############

HT=0.89		HT=0.87		HT=0.88		HT=0.89		HT=0.69	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.60		HORIZ=1.00		HORIZ=1.51	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.31	2.10	5.31	1.96	5.31	2.21	5.32	3.38	5.31	3.48
5.11	2.17	5.11	2.46	5.11	2.81	5.11	3.58	5.11	3.28
4.90	1.83	4.91	2.33	4.91	2.94	4.91	3.26		

HT=0.92		HT=0.60		HT=0.87		HT=0.49		HT=0.64	
HORIZ=2.01		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.31	2.92	5.31	3.02	5.30	3.52	5.31	3.85	5.31	3.70
5.11	2.54	5.11	2.79	5.11	3.18			5.11	3.16
4.91	1.83			4.91	2.62				
4.71	0.95								

HT=0.67		HT=0.71		HT=0.58		HT=0.84		HT=0.75	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.61		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.31	3.48	5.30	3.00	5.30	2.87	5.31	2.63	5.31	2.25
5.11	3.39	5.11	2.63	5.11	2.71	5.11	2.93	5.12	2.68
		4.91	1.99			4.91	2.76	4.91	2.46

RUN NUMBER: 7
METER EQUATION: V = 1.027R + 0.074

SLOPE = 0.0080
ROUGHNESS: 1

############ STATION = 72 TEMPERATURE = 69 F ############

HT=0.78		HT=0.79		HT=0.89		HT=0.79		HT=0.51	
HORIZ=0.21		HORIZ=0.40		HORIZ=0.60		HORIZ=0.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.13	2.21	5.12	2.49	5.13	2.62	5.13	3.17	5.13	3.26
4.93	2.10	4.93	2.71	4.93	2.94	4.93	3.20	4.93	2.91
4.73	2.14	4.73	2.61	4.73	2.80	4.73	1.22		

HT=0.66		HT=0.88		HT=0.98		HT=0.72		HT=0.91	
HORIZ=2.00		HORIZ=2.50		HORIZ=0.00		HORIZ=3.50		HORIZ=4.01	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.14	3.00	5.14	3.05	5.13	3.27	5.14	3.64	5.12	3.66
4.93	2.59	4.93	2.60	4.93	2.96	4.93	3.54	4.93	3.37
		4.73	1.91	4.73	2.43	4.73	3.11	4.73	2.55
				4.53	2.05			4.53	1.03

HT=0.60		HT=0.73		HT=0.83		HT=0.84		HT=0.86	
HORIZ=4.49		HORIZ=5.01		HORIZ=5.40		HORIZ=5.56		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.14	3.32	5.14	3.18	5.14	2.82	5.14	2.68	5.13	2.45
4.93	2.70	4.93	2.69	4.93	3.11	4.93	2.99	4.93	2.45
		4.73	2.03	4.73	3.10	4.73	2.38	4.73	1.77

RUN NUMBER: 8A
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0080
ROUGHNESS: 1

############ STATION = 24 TEMPERATURE = 68 F ############

HT=0.40 HORIZ=0.20		HT=0.40 HORIZ=0.40		HT=0.40 HORIZ=0.60		HT=0.20 HORIZ=0.00		HT=0.40 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.11	1.32	5.11	1.64	5.11	2.00	5.11	2.30	5.11	1.85
4.91	0.58	4.91	1.17	4.95	1.59			4.91	0.29

HT=0.40 HORIZ=0.00		HT=0.20 HORIZ=2.50		HT=0.20 HORIZ=0.00		HT=0.20 HORIZ=3.50		HT=0.20 HORIZ=0.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.11	1.61	5.11	1.08	5.11	1.59	5.11	2.11	5.11	1.48
4.93	1.19								

HT=0.60 HORIZ=4.50		HT=0.20 HORIZ=5.00		HT=0.40 HORIZ=5.40		HT=0.20 HORIZ=5.60		HT=0.20 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.11	0.79	5.15	1.38	5.11	0.52	5.11	0.77	5.11	1.41
4.91	1.01			4.95	0.66				
4.76	0.50								

############ STATION = 48 TEMPERATURE = 68 F ############

HT=0.40 HORIZ=0.20		HT=0.40 HORIZ=0.40		HT=0.40 HORIZ=0.60		HT=0.40 HORIZ=1.00		HT=0.20 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.91	1.45	4.91	1.47	4.91	1.70	4.91	1.97	4.91	1.66
4.71	0.44	4.71	1.54	4.71	1.89	4.71	0.44		

HT=0.40 HORIZ=2.00		HT=0.20 HORIZ=2.50		HT=0.40 HORIZ=3.00		HT=0.10 HORIZ=3.50		HT=0.20 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.91	1.41	4.94	1.78	4.91	1.48			4.92	1.52
4.71	0.77			4.71	0.59				

HT=0.20 HORIZ=4.50		HT=0.20 HORIZ=5.00		HT=0.20 HORIZ=5.40		HT=0.40 HORIZ=5.60		HT=0.20 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.91	1.83	4.91	1.60	4.95	1.61	4.91	1.68	4.91	1.38
						4.71	1.84		

RUN NUMBER: 8A
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0080,
ROUGHNESS: 1

############ STATION = 72 TEMPERATURE = 68 F ############

HT=0.40 HORIZ=0.20		HT=0.20 HORIZ=0.40		HT=0.40 HORIZ=0.60		HT=0.20 HORIZ=1.00		HT=0.10 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.73	1.31	4.73	1.50	4.73	1.73	4.73	0.73		
4.56	1.31			4.53	1.50				

HT=0.20 HORIZ=2.00		HT=0.40 HORIZ=2.50		HT=0.60 HORIZ=3.00		HT=0.20 HORIZ=3.50		HT=0.40 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.73	1.53	4.73	0.95	4.73	1.87	4.73	1.78	4.73	1.43
		4.53	0.44	4.53	1.26			4.53	0.57
				4.40	0.84				

HT=0.20 HORIZ=4.50		HT=0.20 HORIZ=5.00		HT=0.40 HORIZ=5.40		HT=0.40 HORIZ=5.60		HT=0.40 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.74	1.18	4.73	1.15	4.73	1.87	4.73	1.28	4.73	1.28
				4.55	1.74	4.53	0.76	4.53	0.77

############ STATION = 84 TEMPERATURE = 68 F ############

HT=0.10 HORIZ=0.20		HT=0.10 HORIZ=0.40		HT=0.20 HORIZ=0.60		HT=0.40 HORIZ=1.00		HT=0.20 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO				
				4.62	0.58	4.62	0.73	4.62	1.84
						4.42	0.91		

HT=0.60 HORIZ=2.00		HT=0.20 HORIZ=2.50		HT=0.60 HORIZ=3.00		HT=0.10 HORIZ=3.50		HT=0.20 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.62	1.87	4.62	0.70	4.62	2.01			4.62	1.64
4.42	1.75			4.42	1.57				
4.22	0.68			4.25	0.78				

HT=0.40 HORIZ=4.50		HT=0.60 HORIZ=5.00		HT=0.20 HORIZ=5.40		HT=0.10 HORIZ=5.60		HT=0.20 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.62	0.95	4.62	1.83	4.62	1.37			4.62	1.19
4.42	0.47	4.42	1.86						
		4.27	1.60						

RUN NUMBER: 12
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0130
ROUGHNESS: 1

########## STATION = 36 TEMPERATURE = 64 F ##########

HT=1.12		HT=1.11		HT=1.16		HT=0.86		HT=0.98	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.61		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.44	3.50	5.44	3.90	5.44	4.19	5.44	4.73	5.44	5.52
5.24	3.76	5.25	4.39	5.24	4.84	5.25	5.30	5.25	5.41
5.04	3.74	5.05	4.63	5.04	5.05	5.04	5.43	5.04	4.56
4.84	3.70	4.84	4.22	4.85	4.48			4.84	4.01
4.65	2.98	4.64	3.14	4.84	3.69				

HT=0.95		HT=1.01		HT=1.10		HT=1.36		HT=0.93	
HORIZ=2.00		HORIZ=2.51		HORIZ=3.01		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.44	4.90	5.44	4.80	5.44	5.58	5.44	6.25	5.44	6.62
5.24	4.71	5.24	4.64	5.24	5.70	5.24	6.23	5.24	6.16
5.04	3.76	5.04	4.27	5.04	5.42	5.04	5.96	5.04	5.72
4.84	3.17	4.84	3.97	4.84	5.08	4.84	5.42	4.84	5.56
						4.64	3.77		
						4.44	2.30		

HT=0.92		HT=1.20		HT=1.06		HT=1.01		HT=1.04	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.61		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.44	5.39	5.44	4.37	5.44	3.59	5.44	3.15	5.44	2.72
5.24	5.77	5.24	4.87	5.24	4.05	5.24	3.68	5.24	3.23
5.04	5.25	5.04	4.24	5.04	4.22	5.04	4.11	5.04	3.74
4.84	4.53	4.84	3.67	4.84	3.58	4.84	4.01	4.84	3.77
		4.64	2.97						

########## STATION = 72 TEMPERATURE = 66 F ##########

HT=1.02		HT=1.04		HT=1.14		HT=1.00		HT=0.79	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.61		HORIZ=1.00		HORIZ=1.51	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.94	3.76	4.94	3.99	4.94	4.24	4.95	4.64	4.95	5.14
4.74	3.96	4.74	4.64	4.74	4.87	4.74	5.17	4.74	5.16
4.55	3.68	4.54	4.63	4.54	5.12	4.54	5.13	4.54	4.78
4.35	3.39	4.35	4.48	4.34	4.77	4.34	3.56		
				4.15	3.48				

HT=0.98		HT=1.01		HT=1.25		HT=0.98		HT=1.16	
HORIZ=2.00		HORIZ=2.51		HORIZ=3.01		HORIZ=3.51		HORIZ=4.01	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.94	4.67	4.94	4.88	4.95	5.42	4.94	6.58	4.95	6.67
4.74	4.70	4.74	4.53	4.74	5.28	4.74	6.16	4.74	6.26
4.54	3.98	4.54	4.18	4.54	4.86	4.54	5.64	4.54	5.71
4.34	3.39	4.34	3.57	4.34	4.02	4.34	5.21	4.35	4.50
				4.14	3.51			4.14	1.86

HT=0.89		HT=0.98		HT=1.08		HT=1.09		HT=1.11	
HORIZ=4.51		HORIZ=5.01		HORIZ=5.41		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.95	5.55	4.95	4.70	4.94	3.93	4.94	3.67	4.95	3.42
4.74	5.25	4.74	4.80	4.75	4.51	4.75	4.38	4.74	4.00
4.54	4.64	4.55	4.04	4.55	4.70	4.55	4.53	4.55	3.90
		4.34	3.07	4.34	4.52	4.35	3.84	4.35	3.19
								4.15	1.08

RUN NUMBER: 13
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0130
ROUGHNESS: 1

############ STATION = 36 TEMPERATURE = 66 F ############

HT=0.10		HT=0.73		HT=0.78		HT=0.48		HT=0.61	
HORIZ=0.200		HORIZ=0.40		HORIZ=0.60		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
		5.07	2.72	5.07	3.22	5.07	3.87	5.07	3.59
		4.87	3.08	4.87	3.37			4.86	3.30
		4.66	2.50	4.66	1.57				

HT=0.57		HT=0.64		HT=0.72		HT=0.99		HT=0.55	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.07	3.23	5.06	3.62	5.06	4.52	5.07	4.48	5.06	4.53
4.87	2.66	4.87	3.37	4.86	4.43	4.87	4.29	4.86	4.34
				4.66	1.35	4.66	3.33		
						4.46	2.12		

HT=0.54		HT=0.83		HT=0.68		HT=0.64		HT=0.67	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.07	4.40	5.07	3.71	5.06	3.39	5.06	2.61	5.06	1.98
4.87	4.01	4.87	3.09	4.87	3.34	4.87	3.28	4.87	2.96
		4.66	2.58						

############ STATION = 72 TEMPERATURE = 66 F ############

HT=0.66		HT=0.68		HT=0.78		HT=0.64		HT=0.43	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.60		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.59	2.91	4.58	3.16	4.58	3.28	4.58	3.98	4.58	3.86
4.39	2.72	4.38	3.25	4.38	3.60	4.38	3.44		
				4.18	3.32				

HT=0.62		HT=0.65		HT=0.89		HT=0.61		HT=0.80	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.58	3.56	4.58	3.98	4.58	4.09	4.58	4.27	4.58	4.18
4.39	3.15	4.39	3.72	4.38	3.48	4.38	4.30	4.38	3.97
				4.18	2.94			4.18	2.06

HT=0.52		HT=0.61		HT=0.71		HT=0.73		HT=0.75	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.81	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.58	3.55	4.58	3.82	4.58	3.59	4.58	3.14	4.58	2.83
4.39	2.77	4.38	3.12	4.39	3.83	4.38	3.35	4.38	2.91
				4.18	3.82	4.18	2.45	4.18	1.23

RUN NUMBER: 13C
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0130
ROUGHNESS: 1

############ STATION = 36 TEMPERATURE = 70 F ############

HT=0.40 HORIZ=0.20		HT=0.40 HORIZ=0.40		HT=0.40 HORIZ=0.60		HT=0.10 HORIZ=1.00		HT=0.20 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.72	1.59	4.72	1.65	4.72	0.86			4.72	1.72
4.52	1.28	4.56	1.37	4.52	0.80				

HT=0.20 HORIZ=2.00		HT=0.20 HORIZ=2.50		HT=0.40 HORIZ=3.00		HT=0.60 HORIZ=3.50		HT=0.20 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.72	1.76	4.72	2.36	4.72	2.76	4.72	2.41	4.72	2.82
				4.55	1.03	4.52	1.71		
						4.32	0.75		

HT=0.10 HORIZ=4.50		HT=0.40 HORIZ=5.00		HT=0.40 HORIZ=5.40		HT=0.20 HORIZ=5.60		HT=0.40 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
		4.72	1.87	4.72	2.12	4.72	2.00	4.72	1.66
		4.52	1.33	4.62	1.81			4.62	1.62

############ STATION = 72 TEMPERATURE = 70 F ############

HT=0.40 HORIZ=0.20		HT=0.40 HORIZ=0.40		HT=0.40 HORIZ=0.60		HT=0.40 HORIZ=0.00		HT=0.10 HORIZ=0.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.26	1.90	4.26	2.15	4.26	2.19	4.26	1.00		
4.16	1.95	4.15	2.03	4.06	1.78	4.16	0.69		

HT=0.20 HORIZ=0.00		HT=0.40 HORIZ=2.50		HT=0.60 HORIZ=0.00		HT=0.20 HORIZ=3.50		HT=0.40 HORIZ=0.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.26	1.83	4.26	1.68	4.26	1.72	4.26	2.20	4.26	1.66
		4.16	1.20	4.06	1.60			4.06	0.65
				3.96	1.27				

HT=0.10 HORIZ=****		HT=0.20 HORIZ=0.00		HT=0.40 HORIZ=5.40		HT=0.40 HORIZ=5.60		HT=0.40 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
		4.26	1.34	4.26	2.27	4.26	1.40	4.26	1.61
				4.12	2.11	4.10	0.73	4.08	0.89

RUN NUMBER: 16A
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0180
ROUGHNESS: 1

############ STATION = 36 TEMPERATURE = 70 F ############

HT=0.40 HORIZ=0.20		HT=0.40 HORIZ=0.40		HT=0.40 HORIZ=0.60		HT=0.10 HORIZ= ??		HT=0.10 HORIZ= ??	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.42	1.77	4.42	1.97	4.42	0.55				
4.32	1.73			4.32	0.80				

HT=0.10 HORIZ= ??		HT=0.20 HORIZ=2.25		HT=0.10 HORIZ= ??		HT=0.20 HORIZ=3.00		HT=0.40 HORIZ=3.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO

HT=0.10 HORIZ= ??		HT=0.10 HORIZ= ??		HT=0.40 HORIZ=4.75		HT=0.40 HORIZ=5.00		HT=0.20 HORIZ=5.40	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
				4.42	2.13	4.42	2.00	4.42	1.46
				4.32	1.79	4.32	1.82		

HT=0.20 HORIZ=5.60		HT=0.20 HORIZ=5.80		HT= HORIZ=	
VERT	VELO	VERT	VELO		
4.42	1.92	4.42	1.80		

############ STATION = 72 TEMPERATURE = 70 F ############

HT=0.20 HORIZ=0.20		HT=0.20 HORIZ=0.40		HT=0.40 HORIZ=0.60		HT=0.20 HORIZ=1.00		HT=0.10 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
3.81	2.02	3.81	2.11	3.81	2.15	3.81	1.12		
				3.71	1.84				

HT=0.20 HORIZ=2.00		HT=0.20 HORIZ=2.50		HT=0.60 HORIZ=3.00		HT=0.20 HORIZ=3.50		HT=0.40 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
3.81	1.52	3.81	2.18	3.81	1.93	3.81	1.95	3.81	0.72
				3.61	1.60			3.61	0.95
				3.50	0.78				

HT=0.10 HORIZ=4.50		HT=0.20 HORIZ=5.00		HT=0.40 HORIZ=5.40		HT=0.40 HORIZ=5.60		HT=0.40 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
		3.81	0.82	3.81	2.34	3.81	1.13	3.81	0.95
				3.71	2.20	3.71	0.91	3.71	1.06

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RUN NUMBER: 16F
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0180
ROUGHNESS: 1

############ STATION = 36 TEMPERATURE = 69 F ############

HT=0.69		HT=0.67		HT=0.72		HT=0.42		HT=0.57	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.60		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.79	2.48	4.79	2.73	4.79	3.42	4.79	4.16	4.79	3.52
4.60	2.76	4.59	3.07	4.59	3.53			4.59	3.31
				4.39	1.65				

HT=0.52		HT=0.60		HT=0.74		HT=0.92		HT=0.49	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.00		HORIZ=3.49		HORIZ=4.01	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.79	3.60	4.79	4.04	4.79	4.99	4.79	4.84	4.79	4.43
4.59	2.70	4.59	3.77	4.59	4.81	4.59	4.89		
				4.40	1.26	4.39	3.61		
						4.19	2.32		

HT=0.50		HT=0.73		HT=0.61		HT=0.58		HT=0.62	
HORIZ=4.50		HORIZ=5.01		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.79	3.96	4.79	3.67	4.79	3.84	4.79	3.16	4.79	2.16
4.59	3.56	4.59	3.22	4.59	3.71	4.59	3.66	4.59	3.38
		4.39	2.62						

############ STATION = 72 TEMPERATURE = 70 F ############

HT=0.63		HT=0.65		HT=0.75		HT=0.63		HT=0.36	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.61		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.18	2.64	4.17	2.93	4.17	3.18	4.18	4.22	4.17	3.88
3.97	2.39	3.98	3.03	3.97	3.47	3.97	3.65		
				3.77	3.21				

HT=0.59		HT=0.60		HT=0.85		HT=0.58		HT=0.77	
HORIZ=2.01		HORIZ=2.51		HORIZ=3.00		HORIZ=3.51		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.18	3.50	4.17	4.08	4.17	4.18	4.17	4.31	4.17	4.46
3.97	3.07	3.97	3.86	3.97	4.03	3.97	4.02	3.97	3.81
				3.77	3.32			3.77	1.57

HT=0.49		HT=0.58		HT=0.67		HT=0.68		HT=0.71	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.17	3.38	4.17	3.58	4.17	3.73	4.17	3.14	4.17	2.67
		3.97	2.96	3.97	3.82	3.97	3.27	3.98	2.61
								3.78	1.00

RUN NUMBER: 16H
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0180
ROUGHNESS: 1

############ STATION = 0 TEMPERATURE = 69 F ############

HT=1.41 HORIZ=0.20		HT=1.36 HORIZ=0.40		HT=1.36 HORIZ=0.61		HT=1.53 HORIZ=1.01		HT=1.33 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.87	3.93	5.87	4.12	5.87	4.14	5.87	4.08	5.87	3.80
5.67	3.86	5.67	4.06	5.67	4.01	5.67	3.91	5.68	3.72
5.48	3.57	5.47	3.91	5.48	3.89	5.47	3.83	5.47	3.41
5.27	3.12	5.27	3.41	5.27	3.57	5.27	3.69	5.27	3.29
5.07	2.60	5.07	3.48	5.07	3.38	5.08	3.47	5.07	3.17
4.87	2.23	4.87	2.99	4.87	3.10	4.88	3.38	4.88	2.99
						4.67	2.79		

HT=1.33 HORIZ=2.00		HT=1.43 HORIZ=2.50		HT=1.30 HORIZ=3.00		HT=1.40 HORIZ=3.50		HT=1.49 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.88	3.84	5.88	4.01	5.87	4.06	5.87	4.14	5.87	4.03
5.67	3.61	5.67	3.69	5.67	3.90	5.67	4.07	5.67	3.81
5.47	3.27	5.48	3.44	5.47	3.76	5.47	3.80	5.47	3.63
5.27	2.91	5.27	3.18	5.27	3.54	5.27	3.47	5.27	3.20
5.07	2.65	5.08	3.02	5.08	3.11	5.07	3.17	5.07	3.08
4.88	1.75	4.88	2.50			4.87	2.81	4.88	2.71

HT=1.41 HORIZ=4.50		HT=1.53 HORIZ=5.00		HT=1.40 HORIZ=5.40		HT=1.41 HORIZ=5.60		HT=1.43 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.87	3.90	5.88	3.92	5.87	3.80	5.87	3.68	5.87	3.43
5.67	3.67	5.67	3.88	5.67	3.88	5.68	3.67	5.67	3.58
5.47	3.44	5.47	3.58	5.47	3.75	5.47	3.57	5.47	3.40
5.27	3.23	5.27	3.41	5.27	3.29	5.27	3.40	5.27	3.25
5.07	3.04	5.07	2.91	5.08	3.09	5.08	3.13	5.07	3.04
4.87	2.34	4.87	2.31	4.88	2.64	4.87	2.92	4.88	2.70
		4.67	1.65						

############ STATION = 36 TEMPERATURE = 70 F ############

HT=1.05 HORIZ=0.20		HT=1.03 HORIZ=0.40		HT=1.08 HORIZ=0.60		HT=0.78 HORIZ=1.00		HT=0.93 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.15	3.57	5.15	4.04	5.15	4.27	5.15	4.82	5.15	5.66
4.95	3.98	4.95	4.67	4.95	5.06	4.95	5.45	4.95	5.17
4.75	3.82	4.75	4.75	4.75	5.21	4.75	5.68	4.75	4.78
4.55	3.74	4.55	4.11	4.55	3.93			4.55	4.13

HT=0.88 HORIZ=2.00		HT=0.96 HORIZ=2.50		HT=1.10 HORIZ=3.00		HT=1.28 HORIZ=3.50		HT=0.85 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.15	5.31	5.15	5.32	5.15	6.66	5.15	7.63	5.15	7.72
4.95	4.60	4.95	4.85	4.95	5.95	4.95	6.66	4.95	6.51
4.75	3.85	4.75	4.35	4.75	5.67	4.75	6.38	4.75	5.98
		4.55	3.99	4.55	5.44	4.55	5.67		
						4.35	3.28		

HT=0.86 HORIZ=4.50		HT=1.09 HORIZ=5.00		HT=0.97 HORIZ=5.40		HT=0.94 HORIZ=5.60		HT=0.97 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.15	6.44	5.15	5.11	5.15	4.06	5.15	3.50	5.15	3.00
4.95	5.95	4.95	5.26	4.95	4.60	4.95	4.34	4.95	3.64
4.75	5.26	4.75	4.44	4.75	4.64	4.75	4.71	4.75	4.24
		4.55	3.89	4.55	3.85	4.55	4.13	4.55	4.28

RUN NUMBER: 16H
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0180
ROUGHNESS: 1

############ STATION = 48 TEMPERATURE = 70 F ############

HT=1.06		HT=1.04		HT=1.01		HT=1.04		HT=0.91	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.60		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.90	3.33	4.90	3.37	4.90	3.88	4.90	6.23	4.90	6.01
4.71	3.86	4.71	4.12	4.71	4.66	4.70	6.01	4.71	5.92
4.50	4.01	4.50	4.68	4.50	5.31	4.50	6.11	4.51	5.59
4.31	3.09	4.30	4.31	4.31	5.24	4.31	5.39	4.30	4.73

HT=1.12		HT=0.78		HT=1.00		HT=0.68		HT=0.80	
HORIZ=2.01		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.90	5.65	4.90	5.71	4.90	7.05	4.90	8.00	4.90	7.96
4.70	4.77	4.70	5.11	4.70	5.95	4.70	6.91	4.70	6.83
4.50	4.44	4.50	4.39	4.51	4.83			4.50	5.96
				4.30	3.82				
4.10	1.49								

HT=0.89		HT=0.91		HT=0.76		HT=0.87		HT=0.92	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.90	7.14	4.90	6.12	4.90	5.08	4.90	4.64	4.90	4.23
4.71	6.29	4.70	5.45	4.70	5.30	4.70	5.12	4.70	4.42
4.50	5.75	4.50	5.05	4.50	4.82	4.50	4.95	4.50	4.20
		4.30	4.08					4.30	3.75

############ STATION = 60 TEMPERATURE = 70 F ############

HT=0.85		HT=0.84		HT=1.10		HT=1.07		HT=1.04	
HORIZ=0.20		HORIZ=0.41		HORIZ=0.60		HORIZ=1.01		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.70	3.14	4.70	3.66	4.70	4.29	4.70	5.78	4.70	6.61
4.51	3.49	4.50	4.29	4.50	5.03	4.50	5.82	4.50	5.81
4.30	3.63	4.30	4.64	4.30	5.23	4.30	5.54	4.30	5.46
				4.10	4.76	4.10	4.81	4.10	4.36

HT=1.11		HT=1.03		HT=0.77		HT=0.85		HT=0.99	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.70	6.43	4.70	6.41	4.70	6.79	4.70	6.78	4.70	6.79
4.50	4.96	4.51	5.07	4.50	6.03	4.50	6.16	4.50	6.01
4.30	3.35	4.30	4.32	4.31	5.63	4.31	5.08	4.30	5.24
4.10	2.09	4.10	3.91					4.10	4.25
3.91	2.05								

HT=0.82		HT=0.70		HT=0.88		HT=0.80		HT=0.86	
HORIZ=4.51		HORIZ=5.01		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.70	6.43	4.70	5.47	4.70	4.75	4.70	4.53	4.70	4.27
4.50	6.25	4.50	5.64	4.50	5.27	4.50	4.75	4.50	4.36
4.30	5.43			4.30	5.10	4.30	4.26	4.30	3.58

RUN NUMBER: 16H
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0180
ROUGHNESS: 1

############ STATION = 72 TEMPERATURE = 70 F ############

HT=0.91		HT=1.00		HT=1.16		HT=1.03		HT=0.77	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.60		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.53	3.34	4.53	3.67	4.53	4.14	4.52	4.94	4.53	5.19
4.33	3.35	4.33	4.27	4.33	4.60	4.33	5.27	4.33	5.25
4.13	3.00	4.13	4.45	4.12	4.89	4.13	5.04	4.13	4.79
3.93	2.99	3.93	4.23	3.93	4.62	3.93	3.83		
				3.73	3.42				

HT=1.09		HT=1.24		HT=1.24		HT=1.19		HT=1.16	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.52	4.57	4.53	4.40	4.53	5.05	4.53	6.18	4.53	6.46
4.33	4.30	4.33	4.33	4.33	5.02	4.33	5.95	4.32	6.16
4.12	3.67	4.13	3.70	4.13	4.65	4.13	5.43	4.13	5.70
3.93	2.82	3.93	3.00	3.93	4.10	3.93	5.16	3.93	3.91
		3.72	1.73	3.73	3.60	3.83	4.65	3.73	1.34

HT=0.87		HT=0.97		HT=1.18		HT=1.10		HT=1.14	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.53	5.41	4.53	5.12	4.53	3.97	4.53	3.63	4.53	3.46
4.32	4.97	4.33	4.90	4.33	4.80	4.33	4.55	4.33	3.99
4.13	4.08	4.12	3.91	4.13	4.95	4.13	4.65	4.12	3.93
		3.93	3.01	3.93	4.64	3.93	3.80	3.93	3.00
				3.73	3.99			3.73	1.00

RUN NUMBER: 17ABC
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0080
ROUGHNESS: 1

############ STATION = -4 TEMPERATURE = 76 F ############

HT=1.69 HORIZ=0.20		HT=1.72 HORIZ=0.40		HT=1.72 HORIZ=0.61		HT=1.72 HORIZ=1.00		HT=1.72 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.19	3.51	6.19	3.56	6.19	3.58	6.19	3.50	6.18	3.49
5.99	3.43	5.99	3.43	5.98	3.54	5.99	3.45	5.99	3.21
5.79	2.99	5.79	3.22	5.79	3.19	5.79	3.19	5.79	3.01
5.59	2.65	5.59	2.89	5.59	2.95	5.59	3.04	5.59	2.73
5.39	2.42	5.39	2.64	5.39	2.71	5.39	2.90	5.39	2.70
5.19	2.18	5.19	2.58	5.19	2.62	5.19	2.82	5.19	2.65
4.99	2.17	4.99	2.45	4.99	2.54	4.99	2.76	4.99	2.60

HT=1.72 HORIZ=2.00		HT=1.72 HORIZ=2.50		HT=1.62 HORIZ=3.00		HT=1.65 HORIZ=3.50		HT=1.71 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.19	3.29	6.19	3.35	6.18	3.51	6.19	3.55	6.19	3.40
5.99	3.02	5.98	3.31	5.99	3.46	5.99	3.42	5.98	3.08
5.79	2.80	5.78	3.11	5.79	3.31	5.79	3.15	5.79	2.90
5.59	2.59	5.59	2.98	5.59	3.07	5.59	2.97	5.59	2.84
5.39	2.54	5.39	2.71	5.39	2.78	5.39	2.76	5.39	2.55
5.19	2.52	5.19	2.54	5.19	2.67	5.19	2.50	5.19	2.34
4.98	2.43	4.99	2.42	4.99	2.53	4.99	2.47	4.98	2.34

HT=1.68 HORIZ=4.50		HT=1.68 HORIZ=5.00		HT=1.67 HORIZ=5.40		HT=1.61 HORIZ=5.60		HT=1.59 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.18	3.36	6.19	3.43	6.19	3.42	6.18	3.32	6.18	3.16
5.98	3.10	5.99	3.27	5.99	3.32	5.99	3.26	5.99	3.17
5.79	2.91	5.79	2.98	5.79	2.99	5.79	2.96	5.79	2.94
5.59	2.59	5.59	2.73	5.59	2.69	5.59	2.63	5.59	2.65
5.39	2.40	5.39	2.38	5.39	2.45	5.39	2.47	5.39	2.51
5.18	2.29	5.19	2.21	5.19	2.11	5.19	2.19	5.19	2.36
4.99	2.14	4.99	2.01	4.98	1.97	4.98	2.05	4.98	2.11

############ STATION = -2 TEMPERATURE = 76 F ############

HT=1.22 HORIZ=0.21		HT=1.42 HORIZ=0.40		HT=1.63 HORIZ=0.60		HT=1.56 HORIZ=1.00		HT=1.70 HORIZ=1.51	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.19	3.47	6.19	3.58	6.18	3.43	6.19	3.29	6.19	3.22
5.98	3.23	5.98	3.39	5.96	3.36	5.99	3.26	5.99	3.06
5.79	3.10	5.79	3.14	5.77	3.16	5.79	3.13	5.79	2.84
5.59	2.58	5.59	2.75	5.58	3.00	5.59	2.99	5.59	2.78
5.39	2.47	5.39	5.39	2.93		5.39	2.88	5.39	2.71
5.19	2.20	5.19	2.48	5.19	2.71	5.19	2.78	5.19	2.80
4.98	2.25	4.98	2.42	4.99	2.62	4.99	2.86	4.99	2.55

HT=1.68 HORIZ=2.00		HT=1.66 HORIZ=2.50		HT=1.66 HORIZ=3.00		HT=1.61 HORIZ=3.50		HT=1.74 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.19	3.10	6.19	3.25	6.19	3.37	6.18	3.42	6.19	3.20
5.99	2.96	5.98	3.10	5.99	3.31	5.98	3.38	5.99	3.09
5.79	2.76	5.79	3.01	5.79	3.16	5.78	3.15	5.79	2.96
5.59	2.63	5.59	2.83	5.59	2.97	5.59	2.91	5.59	2.65
5.39	2.55	5.39	2.60	5.39	2.77	5.39	2.76	5.38	2.52
5.19	2.51	5.19	2.49	5.19	2.59	5.19	2.59	5.19	2.47
4.99	2.47	4.98	2.43	4.98	2.51	4.98	2.50	4.99	2.39
								4.79	1.94

HT=1.72 HORIZ=4.50		HT=1.60 HORIZ=5.00		HT=1.78 HORIZ=5.40		HT=1.70 HORIZ=5.60		HT=1.77 HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.18	3.22	6.19	3.25	6.18	3.29	6.19	3.23	6.18	3.11
5.98	3.05	5.99	3.19	5.99	3.24	5.98	3.16	5.99	3.04
5.78	2.81	5.79	2.92	5.78	2.91	5.79	2.88	5.79	3.01
5.58	2.55	5.59	2.68	5.59	2.61	5.59	2.70	5.58	2.72
5.39	2.42	5.39	2.51	5.38	2.50	5.38	2.59	5.39	2.52
5.19	2.27	5.19	2.30	5.19	2.33	5.19	2.39	5.19	2.45
4.98	1.98	4.99	2.18	4.98	2.20	4.99	2.25	4.99	2.29
				4.78	1.68			4.78	1.79

RUN NUMBER: 17ABC
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0080
ROUGHNESS: 1 :

############## STATION = 0 TEMPERATURE = 78 F ##############

HT=1.56 HORIZ=0.20		HT=1.52 HORIZ=0.40		HT=1.52 HORIZ=0.60		HT=1.69 HORIZ=1.01		HT=1.58 HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.19	3.45	6.19	3.48	6.19	3.48	6.19	3.37	6.19	3.18
5.99	3.45	5.99	3.38	6.00	3.43	5.99	3.39	5.99	3.20
5.79	2.93	5.79	3.13	5.79	3.34	5.79	3.23	5.79	3.00
5.59	2.65	5.59	2.92	5.59	3.20	5.58	3.18	5.59	3.00
5.39	2.29	5.39	2.66	5.39	2.90	5.39	3.01	5.39	2.73
5.19	2.02	5.19	2.58	5.20	2.67	5.19	2.87	5.19	2.58
4.99	1.85	4.99	2.36	5.00	2.34	4.99	2.63	4.99	2.41

HT=1.47 HORIZ=2.00		HT=1.59 HORIZ=2.50		HT=1.45 HORIZ=3.00		HT=1.50 HORIZ=3.50		HT=1.61 HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.19	3.27	6.19	3.34	6.19	3.50	6.19	3.49	6.19	1.74
5.99	3.02	6.00	3.21	5.99	3.37	6.00	3.43	5.99	1.67
5.79	2.92	5.79	3.11	5.79	3.36	5.79	3.29	5.79	1.55
5.59	2.81	5.59	2.94	5.59	3.19	5.59	3.17	5.59	1.47
5.39	2.58	5.39	2.69	5.39	2.81	5.39	1.51	5.39	1.39
5.19	2.17	5.19	2.48	5.19	2.71	5.19	1.42	5.19	1.26
		4.99	2.13			4.99	1.16	4.99	1.21

HT=1.66 HORIZ=4.50		HT=1.69 HORIZ=5.00		HT=1.56 HORIZ=5.41		HT=1.57 HORIZ=5.61		HT=1.59 HORIZ=5.81	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.19	1.70	6.19	3.46	6.19	3.43	6.19	3.28	6.19	3.14
5.99	1.21	5.99	3.31	5.99	3.39	5.99	3.30	5.99	3.22
5.79	0.56	5.79	3.14	5.79	3.09	5.79	3.07	5.79	3.01
5.59	2.77	5.59	2.84	5.52	2.74	5.59	2.91	5.59	2.84
5.39	2.52	5.39	2.53	5.40	2.58	5.39	2.68	5.39	2.71
5.19	2.24	5.19	2.26	5.19	2.41	5.19	2.59	5.19	2.64
5.00	1.81	5.00	1.81	4.99	2.05	5.00	2.20	4.99	2.42

RUN NUMBER: 17D
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0080
ROUGHNESS: 1

############ STATION = 6 TEMPERATURE = 78 F ############

HT=1.11		HT=1.13		HT=1.24		HT=1.27		HT=1.37	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.60		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.19	4.04	6.19	5.13	6.20	5.42	6.19	5.31	6.20	5.08
6.00	3.35	6.00	4.21	5.99	4.76	6.00	4.79	5.99	4.43
5.79	3.09	5.80	4.02	5.80	4.58	5.79	4.58	5.79	4.40
5.60	3.12	5.60	3.92	5.60	4.44	5.60	4.51	5.60	4.27
5.40	3.34	5.40	3.91	5.40	4.05	5.40	4.24	5.40	4.11
				5.19	2.81	5.20	3.49	5.19	3.35
								5.00	2.39

HT=1.21		HT=1.27		HT=1.12		HT=1.16		HT=1.45	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.01		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.20	4.58	6.20	4.71	6.20	5.46	6.20	5.54	6.20	5.51
6.00	4.40	6.00	4.60	6.00	4.67	6.00	4.72	6.00	4.63
5.79	4.14	5.80	4.26	5.80	4.58	5.79	4.77	5.79	4.52
5.60	3.84	5.60	3.41	5.60	4.34	5.59	4.51	5.60	4.38
5.40	2.72	5.40	2.45	5.39	4.05	5.40	4.37	5.40	4.24
5.20	2.60	5.19	0.63			5.19	3.49	5.19	3.39
								4.99	1.67

HT=1.27		HT=1.17		HT=1.03		HT=1.04		HT=1.09	
HORIZ=4.50		HORIZ=4.99		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
6.20	5.47	6.20	5.37	6.19	5.08	6.19	4.99	6.20	4.61
6.00	4.67	6.00	4.55	5.99	4.47	6.00	4.45	6.00	4.25
5.79	4.36	5.79	4.53	5.80	4.49	5.79	4.45	5.79	4.18
5.60	4.22	5.59	4.34	5.59	4.31	5.60	4.34	5.59	3.92
5.39	3.69	5.40	3.93	5.40	3.77	5.40	3.94	5.39	3.20
5.20	2.44	5.19	3.18						

############ STATION = 12 TEMPERATURE = 78 F ############

HT=1.19		HT=1.13		HT=1.28		HT=1.24		HT=1.01	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.60		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.97	3.49	5.97	3.87	5.97	4.13	5.97	4.75	5.98	4.77
5.77	3.70	5.77	4.12	5.77	4.42	5.77	4.84	5.77	4.76
5.58	3.41	5.57	4.05	5.58	4.40	5.58	4.77	5.57	4.59
5.37	3.05	5.37	3.66	5.37	3.85	5.37	4.31	5.37	4.30
5.17	2.37	5.18	2.48	5.17	2.69	5.17	3.13		

HT=1.09		HT=1.13		HT=1.26		HT=1.35		HT=1.26	
HORIZ=1.99		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.98	4.63	5.97	4.44	5.97	4.74	5.97	4.89	5.97	4.90
5.77	4.33	5.77	4.42	5.77	4.47	5.77	4.80	5.77	4.75
5.57	4.02	5.57	3.91	5.57	4.10	5.57	4.58	5.57	4.59
5.37	3.86	5.37	3.11	5.37	3.49	5.37	4.38	5.37	4.26
		5.17	2.73	5.17	2.96	5.17	3.39	5.17	3.62
						4.97	1.96		

HT=1.34		HT=1.08		HT=1.08		HT=1.16		HT=1.32	
HORIZ=4.51		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.97	4.78	5.97	4.75	5.97	4.38	5.97	3.91	5.97	3.11
5.77	4.74	5.77	4.72	5.77	4.56	5.77	4.27	5.77	3.54
5.57	4.49	5.57	4.35	5.57	4.49	5.57	4.13	5.58	3.67
5.37	3.82	5.37	4.03	5.37	3.78	5.37	3.77	5.37	3.32
5.17	3.23					5.17	2.79	5.17	2.27
4.97	2.68							4.97	0.69

RUN NUMBER: 24C
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0180
ROUGHNESS: 2 '

############ STATION = 36 TEMPERATURE = 82 F ############

HT=0.32		HT=0.33		HT=0.33		HT=0.12		HT=0.28	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.61		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.42	1.45	4.42	1.66	4.42	2.04			4.42	1.69
4.32	0.98	4.32	1.84	4.32	2.08				

HT=0.16		HT=0.13		HT=0.23		HT=0.22		HT=0.10	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.01		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
				4.42	1.49	4.42	2.85		

HT=0.10		HT=0.28		HT=0.32		HT=0.44		HT=0.49	
HORIZ=4.500		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
		4.42	1.45	4.42	2.42	4.42	2.24	4.42	1.93
				4.32	2.41	4.32	2.15	4.32	1.24
						4.22	1.95	4.22	0.68

############ STATION = 72 TEMPERATURE = 82 F ############

HT=0.23		HT=0.24		HT=0.31		HT=0.15		HT=0.28	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.61		HORIZ=1.00		HORIZ=1.51	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
3.76	1.48	3.76	1.74	3.77	2.05			3.76	2.45
				3.67	1.93			3.67	2.74

HT=0.25		HT=0.36		HT=0.28		HT=0.22		HT=0.07	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
3.76	2.64	3.76	2.93	3.77	2.55	3.76	1.75		
				3.66	2.36				

HT=0.15		HT=0.13		HT=0.34		HT=0.15		HT=0.19	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
				3.76	2.45				
				3.66	1.28				

RUN NUMBER: 24H
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0180
ROUGHNESS: 2

############ STATION = 36 TEMPERATURE = 81 F ############

HT=0.70		HT=0.71		HT=0.71		HT=0.48		HT=0.65	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.61		HORIZ=1.00		HORIZ=1.51	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.75	2.15	4.75	2.17	4.75	3.10	4.75	4.37	4.75	3.55
4.56	2.61	4.55	2.88	4.55	3.53			4.55	3.06
4.35	2.73	4.35	3.05	4.35	3.65				

HT=0.54		HT=0.51		HT=0.61		HT=0.60		HT=0.48	
HORIZ=2.00		HORIZ=2.51		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.75	2.99	4.76	4.01	4.75	5.35	4.75	5.25	4.75	4.38
4.55	2.32	4.55	3.93	4.55	4.27	4.55	4.90		

HT=0.48		HT=0.65		HT=0.70		HT=0.82		HT=0.86	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.75	3.25	4.75	3.92	4.75	4.06	4.75	3.46	4.76	3.39
		4.55	3.17	4.56	4.32	4.55	4.13	4.55	3.88
						4.35	3.94	4.36	3.16

############ STATION = 72 TEMPERATURE = 81 F ############

HT=0.60		HT=0.60		HT=0.67		HT=0.52		HT=0.64	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.60		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.08	2.59	4.08	3.15	4.08	3.73	4.08	6.01	4.08	4.68
3.88	2.87	3.88	3.67	3.88	4.22	3.88	5.02	3.88	4.22

HT=0.61		HT=0.72		HT=0.64		HT=0.58		HT=0.43	
HORIZ=2.00		HORIZ=2.51		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.08	4.11	4.08	4.92	4.08	5.22	4.08	4.71	4.08	3.47
3.88	3.88	3.88	4.96	3.88	4.70	3.88	4.13		
		3.68	3.46						

HT=0.52		HT=0.49		HT=0.70		HT=0.51		HT=0.55	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.08	2.99	4.08	4.30	4.08	4.18	4.08	3.78	4.08	3.49
3.88	1.61			3.88	4.32	3.88	4.02	3.88	3.61
				3.68	2.01				

RUN NUMBER: 24J
METER EQUATION: V = 1.060R + 0.073

SLOPE = 0.0180
ROUGHNESS: 2

############ STATION = 36 TEMPERATURE = 81 F ############

HT=1.05		HT=1.06		HT=1.06		HT=0.82		HT=1.00	
HORIZ=0.20		HORIZ=0.40		HORIZ=0.61		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.10	2.90	5.10	3.31	5.10	3.82	5.10	4.72	5.10	6.00
4.90	3.03	4.89	3.74	4.90	4.39	4.90	5.48	4.90	5.40
4.70	3.21	4.70	4.11	4.70	4.97	4.70	5.69	4.70	4.89
4.50	3.40	4.49	4.27	4.50	5.16			4.50	3.90

HT=0.88		HT=0.86		HT=0.96		HT=0.95		HT=0.82	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.10	4.84	5.10	5.06	5.10	7.20	5.10	7.92	5.10	6.21
4.90	4.23	4.90	4.88	4.90	6.50	4.89	6.77	4.89	5.50
4.70	3.69	4.70	4.39	4.70	6.10	4.70	6.45	4.70	5.39
				4.50	3.97	4.50	5.57		

HT=0.83		HT=1.00		HT=1.04		HT=1.17		HT=1.21	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
5.10	5.35	5.10	5.48	5.10	5.08	5.09	4.33	5.10	3.95
4.89	4.54	4.90	4.87	4.89	5.45	4.90	5.12	4.90	4.58
4.70	3.75	4.70	4.24	4.70	5.31	4.69	5.27	4.70	4.71
		4.50	3.69	4.49	4.88	4.50	4.80	4.50	4.31
						4.29	3.31	4.30	2.04

############ STATION = 72 TEMPERATURE = 81 F ############

HT=0.92		HT=0.93		HT=1.00		HT=0.85		HT=0.97	
HORIZ=0.20		HORIZ=0.41		HORIZ=0.60		HORIZ=1.00		HORIZ=1.50	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.41	3.56	4.41	4.06	4.41	4.65	4.41	6.62	4.41	6.32
4.20	3.21	4.21	4.52	4.21	5.12	4.21	6.11	4.21	5.44
4.01	2.93	4.01	4.43	4.01	5.40	4.01	5.98	4.01	4.97
3.81	2.66	3.81	3.98	3.81	4.76			3.81	4.71

HT=0.94		HT=1.05		HT=0.97		HT=0.91		HT=0.76	
HORIZ=2.00		HORIZ=2.50		HORIZ=3.00		HORIZ=3.50		HORIZ=4.00	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.41	5.59	4.41	6.30	4.41	6.74	4.41	6.39	4.41	5.69
4.21	5.10	4.21	5.80	4.20	6.31	4.20	5.93	4.20	4.92
4.01	4.42	4.01	5.48	4.01	5.92	4.01	5.15	4.01	4.12
3.81	3.46	3.81	4.78	3.81	4.82	3.81	3.66		

HT=0.85		HT=0.82		HT=1.03		HT=0.84		HT=0.88	
HORIZ=4.50		HORIZ=5.00		HORIZ=5.40		HORIZ=5.60		HORIZ=5.80	
VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO	VERT	VELO
4.41	5.04	4.41	6.07	4.41	5.23	4.41	4.65	4.41	4.29
4.20	4.18	4.21	5.47	4.20	5.71	4.21	5.36	4.20	5.04
4.01	3.06	4.00	4.83	4.01	5.73	4.01	5.75	4.01	5.23
				3.81	4.08				

		FLUME STATIONS								
	0	12	24	36	48	60	72	84	96	108
RUN=1 SLOPE=0.0080 ROUGHNESS=1, Q:avg=31.750,std dev=0.0238 (4 MEAS.)										
average (of 20 blocks)	6.398	6.218	6.121	6.024	5.889	5.784	5.694	5.543	5.479	5.355
standard deviation	0.0027	0.0041	0.0038	0.0028	0.0029	0.0060	0.0074	0.0047	0.0046	0.0028
RUN=2 SLOPE=0.0080 ROUGHNESS=1, Q:avg=16.210,std dev=0.0282 (4 MEAS.)										
average (of 20 blocks)	5.945	5.802	5.711	5.616	5.488	5.385	5.289	5.167	5.028	4.868
standard deviation	0.0015	0.0021	0.0019	0.0021	0.0023	0.0027	0.0028	0.0027	0.0019	0.0012
RUN=3 SLOPE=0.0080 ROUGHNESS=1, Q:avg= 9.432,std dev=0.0051 (3 MEAS.)										
average (of 15 blocks)	5.692	5.572	5.480	5.380	5.264	5.163	5.070	4.910	4.807	4.649
standard deviation	0.0012	0.0015	0.0019	0.0013	0.0014	0.0017	0.0017	0.0014	0.0017	0.0022
RUN=3.2 SLOPE=0.0080 ROUGHNESS=1, Q:avg=23.256,std dev=0.0052 (3 MEAS.)										
average (of 15 blocks)	6.167	6.004	5.910	5.812	5.682	5.575	5.480	5.321	5.236	5.093
standard deviation	0.0018	0.0024	0.0024	0.0017	0.0021	0.0027	0.0033	0.0022	0.0037	0.0031
RUN=4 SLOPE=0.0080 ROUGHNESS=1, Q:avg= 1.063,std dev=0.0005 (3 MEAS.)										
average (of 10 blocks)	5.164	5.088	4.987	4.900	4.789	4.678	4.568	4.452	4.357	4.265
standard deviation	0.0005	0.0005	0.0003	0.0007	0.0006	0.0007	0.0003	0.0007	0.0004	0.0008
RUN=5 SLOPE=0.0080 ROUGHNESS=1, Q:avg= 4.579,std dev=0.0050 (4 MEAS.)										
average (of 20 blocks)	5.453	5.356	5.262	5.171	5.060	4.959	4.863	4.717	4.608	4.482
standard deviation	0.0008	0.0006	0.0010	0.0005	0.0006	0.0012	0.0007	0.0015	0.0010	0.0034
RUN=6 SLOPE=0.0080 ROUGHNESS=1, Q:avg=32.190,std dev=0.0345 (5 MEAS.)										
average (of 25 blocks)	6.410	6.233	6.139	6.048	5.929	5.838	5.770	5.659	5.619	5.549
standard deviation	0.0027	0.0037	0.0035	0.0050	0.0044	0.0050	0.0058	0.0052	0.0034	0.0028
RUN=7 SLOPE=0.0080 ROUGHNESS=1, Q:avg=16.632,std dev=0.0084 (4 MEAS.)										
average (of 20 blocks)	5.958	5.815	5.724	5.631	5.510	5.413	5.331	5.208	5.147	5.069
standard deviation	0.0012	0.0019	0.0014	0.0021	0.0020	0.0023	0.0019	0.0021	0.0018	0.0016
RUN=8A SLOPE=0.0080 ROUGHNESS=1, Q:avg= 4.560,std dev=0.0030 (5 MEAS.)										
average (of 22 blocks)	5.451	5.353	5.260	5.168	5.062	4.967	4.881	4.773	4.724	4.691
standard deviation	0.0004	0.0005	0.0008	0.0012	0.0009	0.0007	0.0011	0.0025	0.0007	0.0090
RUN=8B SLOPE=0.0080 ROUGHNESS=1, Q:avg=23.682,std dev=0.0029 (3 MEAS.)										
average (of 15 blocks)	6.175	6.010	5.913	5.822	5.698	5.596	5.518	5.372	5.317	5.223
standard deviation	0.0020	0.0030	0.0019	0.0030	0.0042	0.0044	0.0031	0.0024	0.0034	0.0026
RUN=8I SLOPE=0.0080 ROUGHNESS=1, Q:avg= 1.073,std dev=0.0028 (3 MEAS.)										
average (of 15 blocks)	5.166	5.088	4.987	4.900	4.792	4.682	4.578	4.471	4.407	4.381
standard deviation	0.0005	0.0005	0.0000	0.0005	0.0005	0.0000	0.0000	0.0009	0.0004	0.0003
RUN=9A SLOPE=0.0080 ROUGHNESS=1, Q:avg= 6.071,std dev=0.0079 (3 MEAS.)										
average (of 15 blocks)	5.534	5.428	5.334	5.240	5.130	5.032	4.947	4.815	4.748	4.693
standard deviation	0.0006	0.0006	0.0004	0.0006	0.0013	0.0007	0.0014	0.0018	0.0013	0.0023
RUN=9B SLOPE=0.0080 ROUGHNESS=1, Q:avg= 7.987,std dev=0.0025 (3 MEAS.)										
average (of 15 blocks)	5.625	5.512	5.417	5.322	5.210	5.110	5.019	4.885	4.814	4.744
standard deviation	0.0005	0.0006	0.0007	0.0009	0.0010	0.0009	0.0010	0.0008	0.0010	0.0012
RUN=9C SLOPE=0.0080 ROUGHNESS=1, Q:avg= 9.380,std dev=0.0008 (3 MEAS.)										
average (of 15 blocks)	5.686	5.587	5.473	5.377	5.264	5.168	5.084	4.962	4.905	4.844
standard deviation	0.0003	0.0005	0.0008	0.0008	0.0007	0.0007	0.0012	0.0009	0.0009	0.0019
RUN=9D SLOPE=0.0080 ROUGHNESS=1, Q:avg=11.995,std dev=0.0180 (3 MEAS.)										
average (of 15 blocks)	5.792	5.661	5.570	5.476	5.362	5.261	5.178	5.057	5.001	4.936
standard deviation	0.0004	0.0029	0.0006	0.0011	0.0007	0.0009	0.0009	0.0016	0.0024	0.0009
RUN=10A SLOPE=0.0080 ROUGHNESS=1, Q:avg= 0.186,std dev=0.0000 (3 MEAS.)										
average (of 15 blocks)	4.821	4.731	4.609	4.516	4.419	4.317	4.226	4.104	3.962	3.639
standard deviation	0.0003	0.0006	0.0009	0.0008	0.0010	0.0005	0.0005	0.0009	0.0007	0.0009
RUN=10B SLOPE=0.0080 ROUGHNESS=1, Q:avg= 0.265,std dev=0.0000 (3 MEAS.)										
average (of 15 blocks)	4.922	4.826	4.718	4.624	4.526	4.420	4.323	4.227	4.107	3.938
standard deviation	0.0015	0.0015	0.0017	0.0016	0.0015	0.0017	0.0028	0.0016	0.0017	0.0023
RUN=10C SLOPE=0.0080 ROUGHNESS=1, Q:avg= 0.470,std dev=0.0009 (3 MEAS.)										
average (of 9 blocks)	5.046	4.969	4.861	4.772	4.676	4.561	4.448	4.344	4.230	4.001
standard deviation	0.0006	0.0009	0.0023	0.0006	0.0018	0.0015	0.0020	0.0018	0.0021	0.0021

		FLUME STATIONS								
	0	12	24	36	48	60	72	84	96	108
RUN=11A SLOPE=0.0105 ROUGHNESS=1, Q:avg= 4.492,std dev=0.0041 (3 MEAS.)										
average (of 15 blocks)	5.341	5.216	5.076	4.951	4.803	4.665	4.536	4.346	4.220	4.115
standard deviation	0.0011	0.0007	0.0006	0.0011	0.0009	0.0125	0.0013	0.0027	0.0021	0.0014
RUN=11B SLOPE=0.0105 ROUGHNESS=1, Q:avg= 6.019,std dev=0.0048 (3 MEAS.)										
average (of 15 blocks)	5.418	5.282	5.143	5.017	4.866	4.724	4.601	4.405	4.270	4.126
standard deviation	0.0006	0.0004	0.0005	0.0005	0.0008	0.0005	0.0005	0.0009	0.0010	0.0028
RUN=11C SLOPE=0.0105 ROUGHNESS=1, Q:avg= 8.015,std dev=0.0170 (3 MEAS.)										
average (of 15 blocks)	5.510	5.363	5.220	5.089	4.937	4.799	4.676	4.481	4.371	4.262
standard deviation	0.0005	0.0007	0.0009	0.0007	0.0011	0.0015	0.0015	0.0024	0.0036	0.0092
RUN=11D SLOPE=0.0105 ROUGHNESS=1, Q:avg= 9.208,std dev=0.0005 (3 MEAS.)										
average (of 15 blocks)	5.560	5.405	5.264	5.133	4.983	4.841	4.722	4.523	4.409	4.289
standard deviation	0.0005	0.0007	0.0007	0.0006	0.0007	0.0013	0.0020	0.0019	0.0039	0.0070
RUN=11E SLOPE=0.0105 ROUGHNESS=1, Q:avg=12.029,std dev=0.0210 (3 MEAS.)										
average (of 15 blocks)	5.666	5.499	5.362	5.234	5.073	4.931	4.805	4.606	4.501	4.367
standard deviation	0.0011	0.0013	0.0012	0.0011	0.0014	0.0017	0.0018	0.0021	0.0020	0.0019
RUN=11F SLOPE=0.0105 ROUGHNESS=1, Q:avg=16.071,std dev=0.0124 (3 MEAS.)										
average (of 15 blocks)	5.803	5.618	5.485	5.358	5.191	5.051	4.927	4.719	4.620	4.475
standard deviation	0.0003	0.0011	0.0012	0.0013	0.0015	0.0019	0.0022	0.0032	0.0029	0.0013
RUN=11G SLOPE=0.0105 ROUGHNESS=1, Q:avg=23.828,std dev=0.0029 (3 MEAS.)										
average (of 15 blocks)	6.033	5.819	5.680	5.563	5.390	5.251	5.131	4.920	4.829	4.679
standard deviation	0.0011	0.0024	0.0023	0.0031	0.0025	0.0034	0.0033	0.0036	0.0024	0.0016
RUN=11H SLOPE=0.0105 ROUGHNESS=1, Q:avg=31.051,std dev=0.0114 (3 MEAS.)										
average (of 15 blocks)	6.222	5.992	5.850	5.729	5.553	5.411	5.294	5.085	5.001	4.848
standard deviation	0.0016	0.0024	0.0026	0.0036	0.0030	0.0030	0.0050	0.0052	0.0034	0.0029
RUN=11I SLOPE=0.0105 ROUGHNESS=1, Q:avg= 1.127,std dev=0.0005 (3 MEAS.)										
average (of 9 blocks)	5.087	4.982	4.835	4.715	4.571	4.418	4.274	4.103	3.968	3.838
standard deviation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RUN=12 SLOPE=0.0130 ROUGHNESS=1, Q:avg=31.680,std dev=0.0320 (3 MEAS.)										
average (of 15 blocks)	6.185	5.922	5.778	5.639	5.455	5.292	5.155	4.916	4.827	4.677
standard deviation	0.0012	0.0022	0.0032	0.0048	0.0032	0.0049	0.0103	0.0055	0.0061	0.0130
RUN=13 SLOPE=0.0130 ROUGHNESS=1, Q:avg=16.123,std dev=0.0143 (3 MEAS.)										
average (of 15 blocks)	5.762	5.549	5.414	5.265	5.090	4.926	4.783	4.549	4.440	4.287
standard deviation	0.0020	0.0025	0.0033	0.0027	0.0024	0.0023	0.0032	0.0024	0.0020	0.0019
RUN=13C SLOPE=0.0130 ROUGHNESS=1, Q:avg= 4.679,std dev=0.0005 (3 MEAS.)										
average (of 15 blocks)	5.515	5.164	5.022	4.872	4.711	4.552	4.409	4.198	4.061	3.953
standard deviation	0.0016	0.0022	0.0026	0.0009	0.0028	0.0024	0.0029	0.0023	0.0024	0.0032
RUN=14A SLOPE=0.0130 ROUGHNESS=1, Q:avg= 5.988,std dev=0.0009 (3 MEAS.)										
average (of 15 blocks)	5.382	5.221	5.077	4.928	4.763	4.606	4.464	4.249	4.107	3.981
standard deviation	0.0013	0.0008	0.0019	0.0012	0.0013	0.0016	0.0017	0.0013	0.0020	0.0025
RUN=14B SLOPE=0.0130 ROUGHNESS=1, Q:avg= 8.043,std dev=0.0022 (3 MEAS.)										
average (of 15 blocks)	5.470	5.297	5.148	4.997	4.833	4.675	4.537	4.316	4.185	4.053
standard deviation	0.0002	0.0007	0.0005	0.0009	0.0009	0.0011	0.0012	0.0015	0.0022	0.0080
RUN=14C SLOPE=0.0130 ROUGHNESS=1, Q:avg= 9.359,std dev=0.0021 (3 MEAS.)										
average (of 15 blocks)	5.522	5.341	5.195	5.043	4.881	4.717	4.580	4.358	4.229	4.089
standard deviation	0.0005	0.0008	0.0007	0.0015	0.0007	0.0010	0.0011	0.0015	0.0037	0.0086
RUN=14D SLOPE=0.0130 ROUGHNESS=1, Q:avg=12.103,std dev=0.0026 (3 MEAS.)										
average (of 15 blocks)	5.625	5.432	5.292	5.141	4.971	4.807	4.663	4.437	4.312	4.158
standard deviation	0.0005	0.0011	0.0006	0.0006	0.0007	0.0013	0.0015	0.0010	0.0011	0.0013
RUN=14E SLOPE=0.0130 ROUGHNESS=1, Q:avg=24.211,std dev=0.0039 (3 MEAS.)										
average (of 15 blocks)	5.994	5.748	5.603	5.469	5.287	5.122	4.984	4.744	4.645	4.472
standard deviation	0.0010	0.0017	0.0017	0.0027	0.0023	0.0024	0.0036	0.0040	0.0034	0.0031
RUN=14I SLOPE=0.0130 ROUGHNESS=1, Q:avg= 1.127,std dev=0.0005 (3 MEAS.)										
average (of 9 blocks)	5.043	4.920	4.750	4.609	4.445	4.274	4.108	3.916	3.760	3.581
standard deviation	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	FLUME STATIONS 0	12	24	36	48	60	72	84	96	108
RUN=15A SLOPE=0.0155 ROUGHNESS=1, Q:avg= 4.496,std dev=0.0000 (3 MEAS.)										
average (of 15 blocks)	5.259	5.081	4.900	4.724	4.532	4.349	4.169	3.927	3.740	3.550
standard deviation	0.0010	0.0010	0.0018	0.0011	0.0012	0.0011	0.0018	0.0013	0.0012	0.0017
RUN=15B SLOPE=0.0155 ROUGHNESS=1, Q:avg= 6.029,std dev=0.0021 (3 MEAS.)										
average (of 15 blocks)	5.323	5.140	4.956	4.782	4.587	4.404	4.229	3.984	3.799	3.600
standard deviation	0.0005	0.0005	0.0009	0.0007	0.0008	0.0010	0.0008	0.0011	0.0014	0.0024
RUN=15C SLOPE=0.0155 ROUGHNESS=1, Q:avg= 8.054,std dev=0.0046 (3 MEAS.)										
average (of 15 blocks)	5.410	5.216	5.024	4.849	4.657	4.472	4.304	4.051	3.887	3.741
standard deviation	0.0003	0.0006	0.0010	0.0008	0.0010	0.0014	0.0014	0.0012	0.0021	0.0053
RUN=15D SLOPE=0.0155 ROUGHNESS=1, Q:avg= 9.715,std dev=0.0082 (3 MEAS.)										
average (of 15 blocks)	5.478	5.272	5.083	4.905	4.711	4.531	4.355	4.101	3.940	3.776
standard deviation	0.0004	0.0004	0.0005	0.0005	0.0007	0.0012	0.0015	0.0013	0.0017	0.0107
RUN=15E SLOPE=0.0155 ROUGHNESS=1, Q:avg=12.136,std dev=0.0073 (3 MEAS.)										
average (of 15 blocks)	5.567	5.349	5.164	4.989	4.791	4.606	4.428	4.172	4.004	3.796
standard deviation	0.0016	0.0008	0.0009	0.0013	0.0019	0.0024	0.0015	0.0024	0.0027	0.0056
RUN=15F SLOPE=0.0155 ROUGHNESS=1, Q:avg=16.077,std dev=0.0100 (3 MEAS.)										
average (of 15 blocks)	5.697	5.459	5.279	5.105	4.897	4.714	4.542	4.269	4.115	3.893
standard deviation	0.0015	0.0016	0.0010	0.0010	0.0017	0.0020	0.0026	0.0029	0.0017	0.0016
RUN=15G SLOPE=0.0155 ROUGHNESS=1, Q:avg=23.936,std dev=0.0187 (3 MEAS.)										
average (of 15 blocks)	5.920	5.644	5.455	5.295	5.083	4.902	4.736	4.459	4.308	4.066
standard deviation	0.0012	0.0038	0.0028	0.0024	0.0023	0.0032	0.0033	0.0035	0.0024	0.0037
RUN=15H SLOPE=0.0155 ROUGHNESS=1, Q:avg=31.507,std dev=0.0093 (3 MEAS.)										
average (of 15 blocks)	6.112	5.810	5.615	5.464	5.246	5.070	4.906	4.631	4.534	4.419
standard deviation	0.0029	0.0017	0.0007	0.0040	0.0044	0.0055	0.0062	0.0035	0.0082	0.0033
RUN=15I SLOPE=0.0155 ROUGHNESS=1, Q:avg= 1.127,std dev=0.0000 (3 MEAS.)										
average (of 9 blocks)	4.985	4.837	4.640	4.480	4.283	4.086	3.891	3.673	3.490	3.274
standard deviation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RUN=16A SLOPE=0.0180 ROUGHNESS=1, Q:avg= 4.601,std dev=0.0009 (3 MEAS.)										
average (of 10 blocks)	5.213	5.021	4.813	4.621	4.408	4.200	4.009	3.739	3.541	3.412
standard deviation	0.0005	0.0008	0.0008	0.0003	0.0006	0.0005	0.0014	0.0043	0.0025	0.0016
RUN=16B SLOPE=0.0180 ROUGHNESS=1, Q:avg= 6.039,std dev=0.0170 (3 MEAS.)										
average (of 15 blocks)	5.283	5.083	4.873	4.677	4.462	4.256	4.067	3.794	3.595	3.442
standard deviation	0.0003	0.0000	0.0003	0.0000	0.0008	0.0005	0.0006	0.0012	0.0009	0.0021
RUN=16C SLOPE=0.0180 ROUGHNESS=1, Q:avg= 8.049,std dev=0.0005 (3 MEAS.)										
average (of 15 blocks)	5.366	5.152	4.937	4.744	4.531	4.321	4.140	3.861	3.670	3.498
standard deviation	0.0000	0.0000	0.0000	0.0005	0.0013	0.0004	0.0005	0.0022	0.0008	0.0011
RUN=16D SLOPE=0.0180 ROUGHNESS=1, Q:avg= 9.819,std dev=0.0139 (3 MEAS.)										
average (of 15 blocks)	5.436	5.205	4.994	4.801	4.584	4.381	4.194	3.910	3.730	3.569
standard deviation	0.0002	0.0000	0.0005	0.0002	0.0000	0.0002	0.0006	0.0011	0.0008	0.0080
RUN=16E SLOPE=0.0180 ROUGHNESS=1, Q:avg=12.132,std dev=0.0091 (3 MEAS.)										
average (of 15 blocks)	5.521	5.277	5.066	4.875	4.652	4.447	4.259	3.974	3.792	3.612
standard deviation	0.0004	0.0010	0.0000	0.0005	0.0015	0.0002	0.0004	0.0011	0.0004	0.0037
RUN=16F SLOPE=0.0180 ROUGHNESS=1, Q:avg=16.208,std dev=0.0029 (3 MEAS.)										
average (of 15 blocks)	5.650	5.383	5.176	4.992	4.758	4.553	4.374	4.069	3.901	3.700
standard deviation	0.0008	0.0011	0.0025	0.0021	0.0014	0.0016	0.0035	0.0027	0.0020	0.0019
RUN=16G SLOPE=0.0180 ROUGHNESS=1, Q:avg=23.728,std dev=0.0005 (3 MEAS.)										
average (of 15 blocks)	5.859	5.554	5.357	5.163	4.922	4.724	4.557	4.240	4.083	3.869
standard deviation	0.0011	0.0040	0.0026	0.0037	0.0031	0.0029	0.0035	0.0064	0.0029	0.0031
RUN=16H SLOPE=0.0180 ROUGHNESS=1, Q:avg=32.047,std dev=0.0230 (6 MEAS.)										
average (of 30 blocks)	6.069	5.732	5.517	5.348	5.105	4.904	4.736	4.406	4.248	4.027
standard deviation	0.0024	0.0030	0.0037	0.0041	0.0037	0.0053	0.0087	0.0055	0.0047	0.0045
RUN=16I SLOPE=0.0180 ROUGHNESS=1, Q:avg= 1.127,std dev=0.0000 (3 MEAS.)										
average (of 9 blocks)	4.941	4.778	4.559	4.360	4.163	3.939	3.720	3.486	3.281	3.076
standard deviation	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

		FLUME STATIONS								
	0	12	24	36	48	60	72	84	96	108
RUN=1/A SLOPE=0.0080 ROUGHNESS=1, Q:avg=31.833,std dev=0.0315 (2 MEAS.)										
average (of 10 blocks)	6.389	6.267	6.113	6.020	5.883	5.779	5.696	5.529	5.473	5.339
standard deviation	0.0041	0.3019	0.0045	0.0047	0.0029	0.0172	0.0052	0.0043	0.0040	0.0029
RUN=1/B SLOPE=0.0080 ROUGHNESS=1, Q:avg=31.865,std dev=0.0000 (1 MEAS.)										
average (of 5 blocks)	6.391	6.167	6.115	6.020	5.882	5.772	5.696	5.531	5.475	5.334
standard deviation	0.0034	0.0047	0.0035	0.0033	0.0029	0.0062	0.0038	0.0062	0.0048	0.0023
RUN=1/C SLOPE=0.0080 ROUGHNESS=1, Q:avg=31.926,std dev=0.0130 (2 MEAS.)										
average (of 6 blocks)	6.378	6.164	6.111	6.019	5.882	5.276	5.700	5.531	5.474	5.334
standard deviation	0.0302	0.0049	0.0038	0.0035	0.0047	1.1198	0.0050	0.0035	0.0030	0.0022
RUN=1/D SLOPE=0.0080 ROUGHNESS=1, Q:avg=31.967,std dev=0.0135 (3 MEAS.)										
average (of 15 blocks)	6.397	6.173	6.118	6.027	5.893	5.780	5.705	5.531	5.472	5.331
standard deviation	0.0018	0.0047	0.0041	0.0052	0.0033	0.0020	0.0047	0.0058	0.0043	0.0041
RUN=2UA SLOPE=0.0080 ROUGHNESS=2, Q:avg= 0.979,std dev=0.0012 (3 MEAS.)										
average (of 15 blocks)	5.141	5.060	4.952	4.868	4.760	4.647	4.538	4.431	4.340	4.240
standard deviation	0.0007	0.0008	0.0006	0.0007	0.0011	0.0005	0.0013	0.0020	0.0009	0.0011
RUN=2UB SLOPE=0.0080 ROUGHNESS=2, Q:avg= 2.205,std dev=0.0008 (3 MEAS.)										
average (of 15 blocks)	5.277	5.192	5.085	4.994	4.878	4.763	4.659	4.553	4.470	4.348
standard deviation	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007	0.0006	0.0007	0.0008	0.0007
RUN=2UC SLOPE=0.0080 ROUGHNESS=2, Q:avg= 4.545,std dev=0.0057 (3 MEAS.)										
average (of 15 blocks)	5.421	5.326	5.216 -	5.122	5.002	4.882	4.784	4.680	4.601	4.479
standard deviation	0.0025	0.0008	0.0006	0.0007	0.0006	0.0009	0.0006	0.0015	0.0008	0.0012
RUN=2UD SLOPE=0.0080 ROUGHNESS=2, Q:avg= 5.995,std dev=0.0083 (3 MEAS.)										
average (of 15 blocks)	5.498	5.395	5.281	5.190	5.067	4.945	4.850	4.740	4.659	4.521
standard deviation	0.0006	0.0010	0.0006	0.0008	0.0013	0.0009	0.0005	0.0016	0.0008	0.0007
RUN=2UE SLOPE=0.0080 ROUGHNESS=2, Q:avg= 8.035,std dev=0.0021 (3 MEAS.)										
average (of 15 blocks)	5.593	5.482	5.366	5.273	5.150	5.027	4.933	4.823	4.744	4.611
standard deviation	0.0006	0.0011	0.0006	0.0007	0.0010	0.0011	0.0008	0.0011	0.0011	0.0010
RUN=2UF SLOPE=0.0080 ROUGHNESS=2, Q:avg= 9.388,std dev=0.0052 (3 MEAS.)										
average (of 15 blocks)	5.655	5.539	5.422	5.328	5.203	5.079	4.987	4.870	4.793	4.651
standard deviation	0.0009	0.0006	0.0007	0.0011	0.0010	0.0015	0.0011	0.0013	0.0010	0.0007
RUN=2UG SLOPE=0.0080 ROUGHNESS=2, Q:avg=12.117,std dev=0.0323 (3 MEAS.)										
average (of 15 blocks)	5.763	5.637	5.520	5.427	5.301	5.172	5.082	4.964	4.883	4.735
standard deviation	0.0008	0.0013	0.0013	0.0012	0.0012	0.0011	0.0014	0.0029	0.0014	0.0009
RUN=2UH SLOPE=0.0080 ROUGHNESS=2, Q:avg=16.521,std dev=0.0199 (3 MEAS.)										
average (of 15 blocks)	5.913	5.768	5.651	5.561	5.432	5.301	5.216	5.093	5.015	4.865
standard deviation	0.0010	0.0026	0.0020	0.0017	0.0030	0.0033	0.0032	0.0031	0.0026	0.0020
RUN=2UI SLOPE=0.0080 ROUGHNESS=2, Q:avg=23.996,std dev=0.0083 (3 MEAS.)										
average (of 15 blocks)	6.139	5.970	5.840	5.751	5.617	5.492	5.418	5.305	5.227	5.095
standard deviation	0.0012	0.0035	0.0025	0.0047	0.0028	0.0049	0.0039	0.0063	0.0044	0.0027
RUN=2UJ SLOPE=0.0080 ROUGHNESS=2, Q:avg=32.145,std dev=0.0343 (3 MEAS.)										
average (of 15 blocks)	6.347	6.161	6.021	5.932	5.787	5.662	5.591	5.477	5.402	5.254
standard deviation	0.0021	0.0041	0.0049	0.0053	0.0052	0.0048	0.0044	0.0047	0.0045	0.0020
RUN=21A SLOPE=0.0105 ROUGHNESS=2, Q:avg= 1.003,std dev=0.0042 (3 MEAS.)										
average (of 15 blocks)	5.080	4.978	4.844	4.732	4.604	4.463	4.323	4.191	4.075	3.913
standard deviation	0.0008	0.0006	0.0007	0.0007	0.0007	0.0009	0.0005	0.0012	0.0013	0.0006
RUN=21B SLOPE=0.0105 ROUGHNESS=2, Q:avg= 2.206,std dev=0.0012 (3 MEAS.)										
average (of 15 blocks)	5.218	5.109	4.977	4.863	4.721	4.582	4.443	4.311	4.205	4.033
standard deviation	0.0005	0.0006	0.0007	0.0008	0.0007	0.0005	0.0005	0.0006	0.0007	0.0006
RUN=21C SLOPE=0.0105 ROUGHNESS=2, Q:avg= 4.532,std dev=0.0121 (3 MEAS.)										
average (of 15 blocks)	5.357	5.236	5.098	4.982	4.836	4.692	4.560	4.435	4.338	4.209
standard deviation	0.0005	0.0006	0.0007	0.0006	0.0008	0.0008	0.0007	0.0010	0.0006	0.0009
RUN=21D SLOPE=0.0105 ROUGHNESS=2, Q:avg= 6.069,std dev=0.0058 (3 MEAS.)										
average (of 15 blocks)	5.453	5.309	5.166	5.050	4.905	4.755	4.620	4.493	4.397	4.225
standard deviation	0.0007	0.0008	0.0007	0.0008	0.0013	0.0009	0.0010	0.0017	0.0016	0.0010

	0	12	24	36	FLUME STATIONS 48	60	72	84	96	108
RUN=21E SLOPE=0.0105 ROUGHNESS=2, Q:avg= 6.023,std dev=0.0046 (3 MEAS.)										
average (of 15 blocks)	5.523	5.386	5.241	5.125	4.977	4.828	4.701	4.569	4.473	4.313
standard deviation	0.0007	0.0009	0.0007	0.0005	0.0028	0.0009	0.0012	0.0012	0.0011	0.0009
RUN=21F SLOPE=0.0105 ROUGHNESS=2, Q:avg= 9.420,std dev=0.0108 (3 MEAS.)										
average (of 15 blocks)	5.582	5.440	5.291	5.177	5.027	4.879	4.750	4.609	4.515	4.312
standard deviation	0.0007	0.0007	0.0005	0.0015	0.0016	0.0020	0.0020	0.0014	0.0011	0.0010
RUN=21G SLOPE=0.0105 ROUGHNESS=2, Q:avg=12.160,std dev=0.0302 (3 MEAS.)										
average (of 15 blocks)	5.687	5.532	5.385	5.272	5.119	4.967	4.849	4.709	4.623	4.483
standard deviation	0.0007	0.0015	0.0009	0.0011	0.0019	0.0013	0.0021	0.0016	0.0013	0.0014
RUN=21H SLOPE=0.0105 ROUGHNESS=2, Q:avg=16.423,std dev=0.0028 (3 MEAS.)										
average (of 15 blocks)	5.831	5.658	5.506	5.397	5.242	5.087	4.970	4.832	4.748	4.600
standard deviation	0.0009	0.0017	0.0014	0.0015	0.0019	0.0017	0.0030	0.0029	0.0030	0.0020
RUN=21I SLOPE=0.0105 ROUGHNESS=2, Q:avg=23.964,std dev=0.0090 (3 MEAS.)										
average (of 15 blocks)	6.053	5.852	5.693	5.591	5.423	5.266	5.162	5.034	4.952	4.819
standard deviation	0.0014	0.0026	0.0035	0.0041	0.0029	0.0051	0.0055	0.0042	0.0028	0.0029
RUN=21J SLOPE=0.0105 ROUGHNESS=2, Q:avg=32.341,std dev=0.1256 (3 MEAS.)										
average (of 15 blocks)	6.258	6.039	5.868	5.765	5.589	5.431	5.335	5.209	5.132	4.984
standard deviation	0.0017	0.0025	0.0026	0.0016	0.0026	0.0033	0.0035	0.0036	0.0036	0.0031
RUN=22A SLOPE=0.0130 ROUGHNESS=2, Q:avg= 1.023,std dev=0.0019 (3 MEAS.)										
average (of 15 blocks)	5.016	4.885	4.721	4.577	4.415	4.241	4.081	3.920	3.779	3.652
standard deviation	0.0005	0.0005	0.0005	0.0005	0.0007	0.0007	0.0008	0.0006	0.0007	0.0007
RUN=22B SLOPE=0.0130 ROUGHNESS=2, Q:avg= 2.210,std dev=0.0031 (3 MEAS.)										
average (of 15 blocks)	5.151	5.016	4.854	4.711	4.533	4.360	4.202	4.035	3.902	3.735
standard deviation	0.0005	0.0012	0.0006	0.0009	0.0005	0.0005	0.0006	0.0007	0.0007	0.0006
RUN=22C SLOPE=0.0130 ROUGHNESS=2, Q:avg= 4.471,std dev=0.0085 (3 MEAS.)										
average (of 15 blocks)	5.286	5.139	4.970	4.826	4.640	4.484	4.313	4.155	4.036	3.917
standard deviation	0.0006	0.0007	0.0007	0.0008	0.0007	0.0013	0.0014	0.0007	0.0010	0.0008
RUN=22D SLOPE=0.0130 ROUGHNESS=2, Q:avg= 6.048,std dev=0.0041 (3 MEAS.)										
average (of 15 blocks)	5.360	5.205	5.030	4.890	4.704	4.525	4.376	4.215	4.107	3.987
standard deviation	0.0005	0.0006	0.0007	0.0007	0.0007	0.0007	0.0008	0.0011	0.0009	0.0009
RUN=22E SLOPE=0.0130 ROUGHNESS=2, Q:avg= 7.990,std dev=0.0079 (3 MEAS.)										
average (of 15 blocks)	5.446	5.280	5.102	4.960	4.773	4.594	4.446	4.288	4.186	4.067
standard deviation	0.0006	0.0007	0.0008	0.0007	0.0007	0.0011	0.0007	0.0030	0.0018	0.0023
RUN=22F SLOPE=0.0130 ROUGHNESS=2, Q:avg= 9.505,std dev=0.0026 (3 MEAS.)										
average (of 15 blocks)	5.509	5.338	5.154	5.013	4.823	4.641	4.503	4.339	4.237	4.111
standard deviation	0.0007	0.0008	0.0009	0.0008	0.0008	0.0012	0.0006	0.0010	0.0014	0.0005
RUN=22G SLOPE=0.0130 ROUGHNESS=2, Q:avg=12.048,std dev=0.0117 (3 MEAS.)										
average (of 15 blocks)	5.601	5.418	5.251	5.095	4.902	4.720	4.583	4.401	4.293	4.111
standard deviation	0.0014	0.0014	0.0014	0.0011	0.0015	0.0009	0.0022	0.0032	0.0029	0.0020
RUN=22H SLOPE=0.0130 ROUGHNESS=2, Q:avg=16.505,std dev=0.0078 (3 MEAS.)										
average (of 15 blocks)	5.747	5.543	5.358	5.227	5.032	4.841	4.707	4.522	4.409	4.187
standard deviation	0.0007	0.0017	0.0013	0.0022	0.0024	0.0014	0.0026	0.0035	0.0026	0.0026
RUN=22I SLOPE=0.0130 ROUGHNESS=2, Q:avg=23.430,std dev=0.0190 (3 MEAS.)										
average (of 15 blocks)	5.949	5.715	5.518	5.393	5.189	4.992	4.868	4.691	4.573	4.326
standard deviation	0.0020	0.0026	0.0019	0.0027	0.0024	0.0037	0.0052	0.0038	0.0034	0.0032
RUN=22J SLOPE=0.0130 ROUGHNESS=2, Q:avg=32.117,std dev=0.0021 (3 MEAS.)										
average (of 15 blocks)	6.156	5.899	5.692	5.567	5.354	5.155	5.042	4.862	4.747	4.479
standard deviation	0.0032	0.0030	0.0092	0.0049	0.0058	0.0045	0.0051	0.0032	0.0038	0.0027
RUN=23A SLOPE=0.0155 ROUGHNESS=2, Q:avg= 0.997,std dev=0.0014 (3 MEAS.)										
average (of 15 blocks)	4.951	4.793	4.596	4.423	4.239	4.032	3.830	3.648	3.476	3.316
standard deviation	0.0008	0.0009	0.0009	0.0018	0.0019	0.0007	0.0017	0.0017	0.0019	0.0013
RUN=23B SLOPE=0.0155 ROUGHNESS=2, Q:avg= 2.209,std dev=0.0021 (3 MEAS.)										
average (of 15 blocks)	5.096	4.930	4.741	4.571	4.361	4.161	3.958	3.764	3.604	3.404
standard deviation	0.0008	0.0010	0.0015	0.0015	0.0010	0.0014	0.0018	0.0020	0.0020	0.0020

		FLUME STATIONS								
	0	12	24	36	48	60	72	84	96	108
RUN=23C SLOPE=0.0155 ROUGHNESS=2, Q:avg= 4.568,std dev=0.0109 (3 MEAS.)										
average (of 15 blocks)	5.228	5.051	4.858	4.685	4.471	4.262	4.068	3.878	3.725	3.498
standard deviation	0.0010	0.0010	0.0010	0.0011	0.0014	0.0015	0.0018	0.0016	0.0017	0.0008
RUN=23D SLOPE=0.0155 ROUGHNESS=2, Q:avg= 6.198,std dev=0.0049 (3 MEAS.)										
average (of 15 blocks)	5.305	5.118	4.915	4.748	4.532	4.323	4.126	3.934	3.786	3.537
standard deviation	0.0009	0.0015	0.0013	0.0015	0.0007	0.0008	0.0010	0.0015	0.0018	0.0011
RUN=23E SLOPE=0.0155 ROUGHNESS=2, Q:avg= 8.054,std dev=0.0037 (3 MEAS.)										
average (of 15 blocks)	5.384	5.189	4.983	4.815	4.594	4.387	4.196	3.995	3.866	3.705
standard deviation	0.0012	0.0009	0.0008	0.0012	0.0015	0.0010	0.0037	0.0017	0.0022	0.0037
RUN=23F SLOPE=0.0155 ROUGHNESS=2, Q:avg= 9.088,std dev=0.0195 (3 MEAS.)										
average (of 15 blocks)	5.430	5.229	5.016	4.851	4.630	4.418	4.234	4.032	3.906	3.759
standard deviation	0.0010	0.0013	0.0013	0.0010	0.0013	0.0011	0.0029	0.0046	0.0018	0.0069
RUN=23G SLOPE=0.0155 ROUGHNESS=2, Q:avg=12.211,std dev=0.0092 (3 MEAS.)										
average (of 15 blocks)	5.542	5.323	5.109	4.945	4.723	4.509	4.323	4.116	3.993	3.828
standard deviation	0.0008	0.0012	0.0010	0.0012	0.0013	0.0012	0.0022	0.0022	0.0021	0.0027
RUN=23H SLOPE=0.0155 ROUGHNESS=2, Q:avg=16.274,std dev=0.0033 (3 MEAS.)										
average (of 15 blocks)	5.673	5.430	5.222	5.062	4.833	4.612	4.437	4.219	4.102	3.934
standard deviation	0.0008	0.0021	0.0013	0.0015	0.0018	0.0020	0.0022	0.0035	0.0018	0.0032
RUN=23I SLOPE=0.0155 ROUGHNESS=2, Q:avg=24.068,std dev=0.0081 (3 MEAS.)										
average (of 15 blocks)	5.891	5.613	5.396	5.247	5.011	4.783	4.607	4.405	4.290	4.099
standard deviation	0.0011	0.0016	0.0020	0.0027	0.0050	0.0039	0.0044	0.0060	0.0021	0.0031
RUN=23J SLOPE=0.0155 ROUGHNESS=2, Q:avg=32.140,std dev=0.0639 (3 MEAS.)										
average (of 15 blocks)	6.086	5.784	5.558	5.402	5.157	4.929	4.708	4.539	4.444	4.250
standard deviation	0.0011	0.0033	0.0018	0.0035	0.0053	0.0038	0.0069	0.0059	0.0055	0.0041
RUN=24A SLOPE=0.0180 ROUGHNESS=2, Q:avg= 0.995,std dev=0.0033 (3 MEAS.)										
average (of 15 blocks)	4.905	4.735	4.506	4.410	4.124	3.897	3.677	3.406	3.269	3.112
standard deviation	0.0006	0.0007	0.0007	0.0010	0.0007	0.0007	0.0008	0.0010	0.0007	0.0007
RUN=24B SLOPE=0.0180 ROUGHNESS=2, Q:avg= 2.211,std dev=0.0022 (3 MEAS.)										
average (of 15 blocks)	5.049	4.870	4.653	4.464	4.250	4.030	3.811	3.587	3.410	3.263
standard deviation	0.0007	0.0009	0.0010	0.0007	0.0010	0.0008	0.0015	0.0012	0.0011	0.0007
RUN=24C SLOPE=0.0180 ROUGHNESS=2, Q:avg= 4.517,std dev=0.0042 (3 MEAS.)										
average (of 15 blocks)	5.183	4.993	4.771	4.574	4.348	4.129	3.916	3.699	3.519	3.301
standard deviation	0.0009	0.0011	0.0007	0.0011	0.0011	0.0012	0.0014	0.0011	0.0011	0.0009
RUN=24D SLOPE=0.0180 ROUGHNESS=2, Q:avg= 5.982,std dev=0.0017 (3 MEAS.)										
average (of 15 blocks)	5.250	5.048	4.821	4.626	4.409	4.182	3.967	3.743	3.587	3.423
standard deviation	0.0010	0.0011	0.0009	0.0011	0.0009	0.0010	0.0009	0.0009	0.0013	0.0009
RUN=24E SLOPE=0.0180 ROUGHNESS=2, Q:avg= 7.990,std dev=0.0026 (3 MEAS.)										
average (of 15 blocks)	5.336	5.123	4.891	4.700	4.471	4.250	4.038	3.814	3.654	3.479
standard deviation	0.0007	0.0009	0.0006	0.0007	0.0012	0.0014	0.0007	0.0012	0.0012	0.0022
RUN=24F SLOPE=0.0180 ROUGHNESS=2, Q:avg= 9.297,std dev=0.0120 (3 MEAS.)										
average (of 15 blocks)	5.388	5.170	4.951	4.742	4.513	4.288	4.084	3.854	3.701	3.504
standard deviation	0.0008	0.0016	0.0010	0.0016	0.0010	0.0017	0.0015	0.0030	0.0040	0.0097
RUN=24G SLOPE=0.0180 ROUGHNESS=2, Q:avg=12.131,std dev=0.0196 (3 MEAS.)										
average (of 15 blocks)	5.469	5.256	5.013	4.833	4.599	4.369	4.165	3.920	3.772	3.569
standard deviation	0.0007	0.0012	0.0006	0.0025	0.0017	0.0014	0.0012	0.0021	0.0029	0.0030
RUN=24H SLOPE=0.0180 ROUGHNESS=2, Q:avg=16.610,std dev=0.0060 (2 MEAS.)										
average (of 15 blocks)	5.630	5.372	5.138	4.952	4.710	4.472	4.280	4.033	3.875	3.641
standard deviation	0.0010	0.0012	0.0011	0.0017	0.0014	0.0029	0.0031	0.0037	0.0033	0.0048
RUN=24I SLOPE=0.0180 ROUGHNESS=2, Q:avg=25.851,std dev=0.0099 (3 MEAS.)										
average (of 15 blocks)	5.830	5.535	5.292	5.131	4.880	4.634	4.439	4.192	4.047	3.821
standard deviation	0.0012	0.0020	0.0031	0.0036	0.0033	0.0032	0.0050	0.0052	0.0029	0.0043
RUN=24J SLOPE=0.0180 ROUGHNESS=2, Q:avg=32.167,std dev=0.0091 (3 MEAS.)										
average (of 15 blocks)	6.028	5.703	5.455	5.295	5.032	4.786	4.612	4.351	4.222	3.929
standard deviation	0.0016	0.0036	0.0031	0.0046	0.0066	0.0046	0.0056	0.0046	0.0038	0.0057

		FLUME STATIONS								
	0	12	24	36	48	60	72	84	96	108
RUN=24K SLOPE=0.0180 ROUGHNESS=2, Q:avg= 0.223,std dev=0.0009 (3 MEAS.)										
average (of 15 blocks)	4.554	4.356	4.145	3.934	3.724	3.519	3.336	3.127	2.919	2.641
standard deviation	0.0005	0.0006	0.0005	0.0007	0.0005	0.0006	0.0007	0.0007	0.0007	0.0005
RUN=24L SLOPE=0.0180 ROUGHNESS=2, Q:avg= 0.376,std dev=0.0000 (3 MEAS.)										
average (of 15 blocks)	4.730	4.533	4.327	4.118	3.929	3.701	3.507	3.311	3.078	2.702
standard deviation	0.0005	0.0007	0.0005	0.0007	0.0007	0.0008	0.0009	0.0007	0.0009	0.0008
RUN=24M SLOPE=0.0180 ROUGHNESS=2, Q:avg= 0.535,std dev=0.0000 (3 MEAS.)										
average (of 15 blocks)	4.815	4.633	4.433	4.231	4.034	3.797	3.587	3.393	3.166	2.749
standard deviation	0.0008	0.0007	0.0007	0.0007	0.0005	0.0008	0.0007	0.0006	0.0006	0.0005
RUN=24N SLOPE=0.0180 ROUGHNESS=2, Q:avg= 0.684,std dev=0.0000 (3 MEAS.)										
average (of 15 blocks)	4.854	4.682	4.467	4.270	4.080	3.842	3.626	3.427	3.210	2.926
standard deviation	0.0007	0.0006	0.0008	0.0007	0.0010	0.0009	0.0006	0.0010	0.0008	0.0009
RUN=25A SLOPE=0.0080 ROUGHNESS=2, Q:avg= 0.110,std dev=0.0000 (3 MEAS.)										
average (of 15 blocks)	4.663	4.556	4.455	4.350	4.253	4.161	4.076	3.987	3.892	3.794
standard deviation	0.0007	0.0007	0.0006	0.0013	0.0009	0.0005	0.0007	0.0009	0.0009	0.0009
RUN=25B SLOPE=0.0080 ROUGHNESS=2, Q:avg= 0.272,std dev=0.0009 (3 MEAS.)										
average (of 15 blocks)	4.933	4.842	4.733	4.630	4.538	4.434	4.333	4.241	4.108	3.940
standard deviation	0.0011	0.0007	0.0007	0.0007	0.0008	0.0007	0.0007	0.0007	0.0007	0.0011
RUN=25C SLOPE=0.0080 ROUGHNESS=2, Q:avg= 0.354,std dev=0.0000 (3 MEAS.)										
average (of 15 blocks)	4.991	4.905	4.793	4.697	4.604	4.495	4.390	4.298	4.159	3.956
standard deviation	0.0006	0.0007	0.0009	0.0008	0.0007	0.0007	0.0008	0.0009	0.0007	0.0007
RUN=25D SLOPE=0.0080 ROUGHNESS=2, Q:avg= 0.680,std dev=0.0009 (3 MEAS.)										
average (of 15 blocks)	5.105	5.025	4.907	4.821	4.718	4.611	4.504	4.401	4.306	4.218
standard deviation	0.0010	0.0005	0.0005	0.0009	0.0007	0.0005	0.0009	0.0007	0.0005	0.0008

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